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IN LOGY DEPT.

The

# Refrigeration Service Engineer

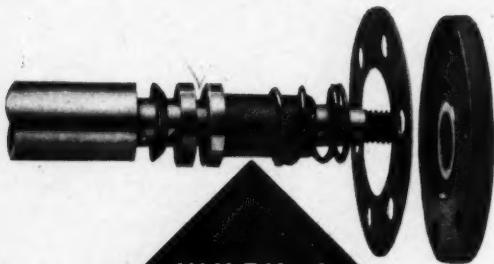
OL. 11

NO. 12

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DECEMBER . 1943





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## \*Everyone Knows Henry W. Gullatt!



\*That is, everyone in the refrigeration industry in South Carolina, Georgia and Florida. If you are in that territory, you're invited to get

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RD-41

**TWENTY-EIGHT YEARS OF KNOWING HOW**

# BOUND FOR UNKNOWN PORTS



December, 1943

2

THE REFRIGERATION

**TODAY**

In the early morning mists, a great convoy steams away for unknown ports, with its precious cargoes of men, munitions and food. Food for consumption on

**TOMORROW**

the most vital parts in our civilian life, assured everyone a supply of fresh, wholesome food, in or out of season.

the early morning mist, a great convoy steams away for unknown ports, with its precious cargoes of men, munitions and food. Food for consumption on the voyage, for our boys in far-away countries, and for the oppressed peoples all over the world. Food, kept fresh and wholesome by refrigeration; only one of the many ways in which the refrigeration industry is helping to speed Victory.

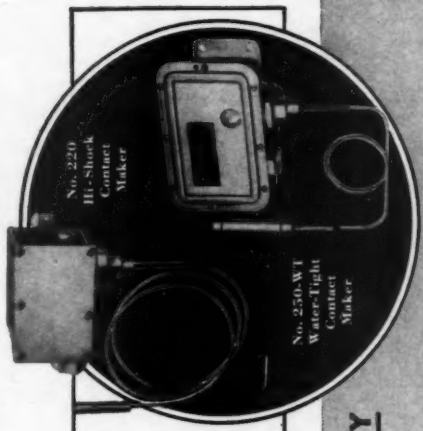
"DL" Contact Makers (Controls), specially designed for the rigors of wartime service, are in use today, by the thousands, on Maritime and Naval vessels, large and small, accurately controlling temperatures of food storage compartments, holds, refrigerated cases, etc., as well as protecting their engines from damage due to insufficient cooling or lubrication.

the most vital parts in our civilian life, assure everyone a supply of fresh, wholesome food, in or out of season. Fresh seafood for the rancher in Arizona; fresh raspberries in January for the businessman in Boston. Low temperature storage units, and multiple temperature units for storage of meats, fruit, and frozen foods for the home will be within the reach of all.

The valuable data gained by the industry in production for war, will be used to make better products for peace. "Detroit" products then, as now, and as in the past, will continue to be the best that it is possible to produce for the refrigeration industry.

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The No. 220 HI-Shock Contact Maker is designed to withstand a 2000-ft. pound shock and will operate when completely submerged in water to a depth of 25 feet. The No. 250-WT Water-Tight Contact Maker is designed for wet locations, where conditions may subject it to drip-page or spray. It will operate submerged to a depth of three feet. The above contact makers are available in refrigeration ranges for control of air, or liquid temperatures. Write for Bulletin 204 and 206 for further data.



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General Offices: DETROIT, MICHIGAN  
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## The Changing World

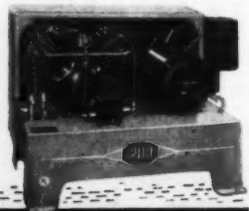
★ ★ ★ Housewives riveting . . .  
office workers running intricate  
machines . . . men from every walk  
of life studying mechanics in the  
services. Yes, this is a changing  
world.

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a market keenly aware of mechan-  
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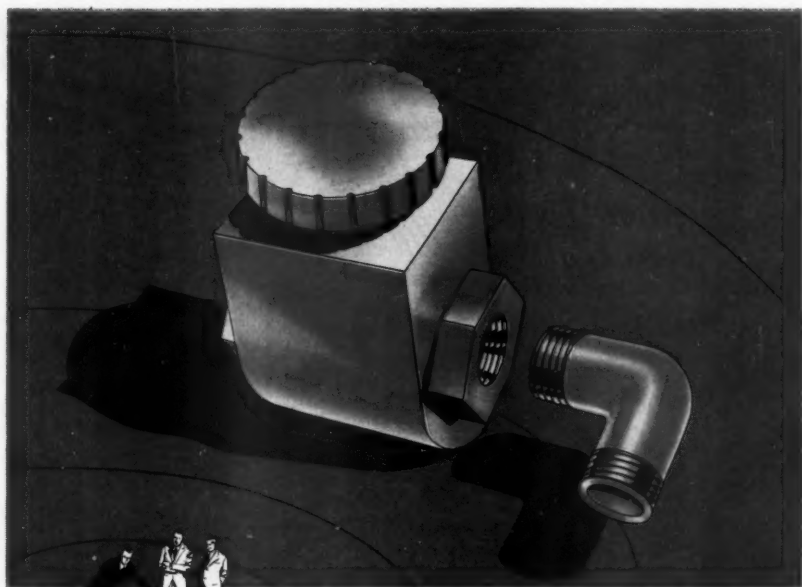
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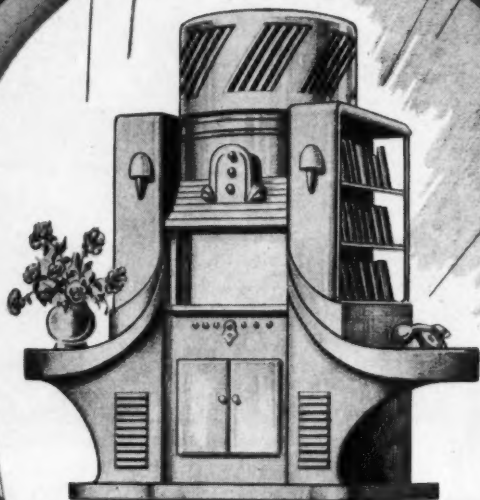
KEROTEST'S "M" Pennant and Victory Fleet Flag—awarded by the U. S. Maritime Commission for outstanding marine service production — now carries the Fleet Field Star.

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*Designers and Manufacturers of*  
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**Pressure Regulating Valves**  
**Solenoid Valves**  
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But, more seriously, if you plan to build air conditioning units in the postwar period, it will pay you to investigate Alco Engineered Control Valves for improved performance of any unit—the sole reason for their use in leading units before the war.

You are invited to send for bulletins, data, and to consult with our engineering staff on valves best suited to your requirements.

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# Build your post-war business through the job you're doing today

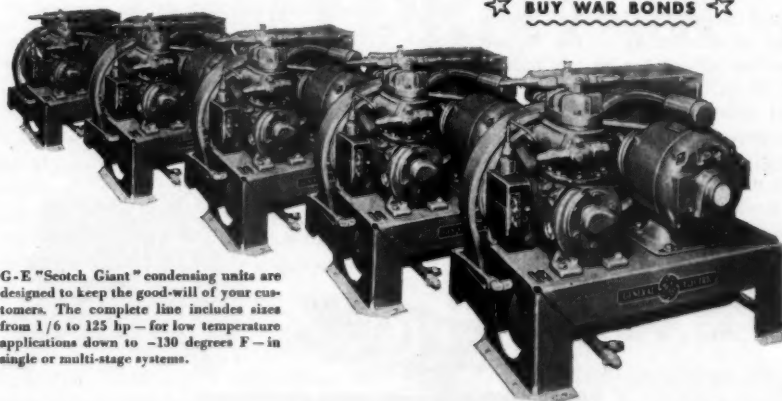
**I**T'S not an easy job right now—but it's one that may pay big dividends in building good-will for your post-war business.

Your customers know that your hard work and ability are helping to keep their equipment running—often far beyond its normal life. They know that you are working under difficulties, with many calls on your time . . . and with parts and materials sometimes hard to get. And they'll remember your good work when the time comes to replace over-age refrigeration units.

Be prepared to cash in on the good-will you are building—start *now* to suggest future installations of G-E condensing units. Look into the new wartime uses of refrigeration—each of them will offer a fertile market. Your customers and prospects will welcome your suggestions—for they know that G-E condensing units are built to give them the performance they want.

*General Electric Company, Air Conditioning and Commercial Refrigeration Divisions, Section 37112, Bloomfield, New Jersey.*

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**GENERAL  ELECTRIC**  
**"Scotch Giant" Condensing Units**

# SPOILED FOOD

Whenever *any* American food supplies spoil for lack of refrigeration...that's a nice break for the sons of the Rising Sun!

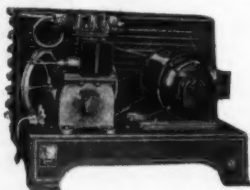
Why? Because today food is actually as vital as armaments to the United States and her Allies. Armies *still* fight on their stomachs...war-workers work on *theirs*... and all-important civilian health depends on good food. Yes, we still have a good supply of food in our national larder... but not so much that we can let a bit of it spoil and go to waste.

We can't afford to give the Nipponese *any* kind of a break! That's why America has placed proper refrigeration in the "must" class...where it has always

belonged! And, of course, Brunner equipment...foremost in the field for years...has been wisely drafted to *keep* refrigeration requirements top-high for the duration.

The utter dependability of Brunner condensing units and refrigeration equipment is a comforting asset to all who handle America's food...in great quantities or small.

After the war, Brunner will still keep its standards...and *yours*...as lofty as it is humanly and mechanically possible.



COMMERCIAL REFRIGERATION

**BRUNNER MANUFACTURING CO., UTICA, N. Y., U. S. A.**

*More important  
than ever*

**-in the war or  
moisture**



# IMPERIAL *TORPEDO* (Patent applied for) DEHYDRATOR

NEVER before in the history of the refrigeration industry has the dehydrator been as important an item as today. Since old machines cannot be replaced—they must be repaired. And every time a unit is torn down, it is essential that all possibility of moisture be eliminated—a job for a dehydrator.

For drying out a system the most formidable weapon in this war on moisture is the Imperial Torpedo Dehydrator. This is the dehydrator that was first announced in December, 1940,

and immediately established an amazing performance record.

Here are the features that have set an entirely new standard in dehydrator construction:

- One piece streamlined shell
- Fewer joints — no soft solder — less chance of leakage
- Copper and brass construction
- Packed with "Silica Gel"

Torpedo Dehydrators are built in sizes up to 7 h.p. Available under L-126.

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STRAINERS • DEHYDRATORS • VALVES • FITTINGS • FLOATS • CHARGING LINES  
TOOLS FOR CUTTING, FLARING, BENDING, COILING, PINCH-OFF AND SWEDGING

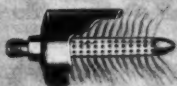
# DESIGN..

... MAKES THIS REFILLABLE  
DEHYDRATOR MORE EFFICIENT

This product is available under 1-12a.



Cross section of Type 743 Henry Dehydrator.



**Greater Efficiency Because of Patented Dispersion Tube.** Entire volume of the dehydrant is exposed to penetration by refrigerant.



**Strainer Tube Can Be Easily Cleaned or Replaced.** The reinforced monel-strainer tube is silver soldered to the outlet fitting eliminating by-passing of the refrigerant.



**Also-Dry Pressure Sealing Process.** Loosening of seal cap prior to installation produces hissing sound due to escape of dehydrated air indicating that dehydrant is absolutely dry.



**One Piece Drawn Brass Shell.** Type 743 Dehydrators in the 6" length are drawn in one piece so that they have only one joint—largest joint in any dehydrator of this size.

Easy to clean! Easy to restore to original efficiency by merely replacing the dehydrant! These are your first reactions when you remember field problems encountered in servicing Refrigeration and Air Conditioning installations. Apart from the refillable feature, however, Type 743 Henry Dehydrator should be the choice of anyone interested in more efficient removal of moisture in a system. This is because many of the standard Henry features of design and construction that have made Henry Dehydrators the choice of the Industry are incorporated in this refillable dehydrator. You will find these features described in detail on the left.

Type 743 Refillable Dehydrator is available in a series of sizes and capacities that will take care of the majority of commercial installations. Best of all, the unit is so reasonably priced that it will pay any service or contracting organization to use it as standard equipment.



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AMMONIA VALVES • FORGED STEEL VALVES AND FITTINGS FOR OIL, STEAM AND OTHER FLUIDS

APPROVED FOR NAVY, MARITIME COMMISSION AND ARMY USE



# Artic

(DU PONT METHYL CHLORIDE)

## SERVICE NEWS

### WAR-TIME NEWS LETTER

Dear Sir:

Priority Ratings on Methyl Chloride - Users should read carefully Order P-126 (revised on September 15, 1943) so that they may endorse their orders with any rating authorized by this revised order and by CWP regulations No. 5 or 5A.

If in doubt about what rating to apply, consult your source of supply.

When ordering 500 lbs. or more of Methyl Chloride, let us ship in available cylinders unless you cannot use some sizes. If we can use what we have on hand, you'll have a better chance of getting prompt shipment.

Handle cylinders and drums carefully. New containers are hard to get. Present supply must be kept in working condition.

Empty cylinders and drums promptly. Ship all empties back to us immediately - fast cylinder turnover increases your chances for prompt delivery.

You can help - and help yourself by so doing. How about it?

Very truly yours,

*Thomas Coyle*

THOMAS COYLE  
Manager, Chlorine Products Division

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY



## OVERLOAD PROTECTION

There are many reasons why the overload unit in a Rancostat gives the most accurate and consistent protection. The heater coil is embedded and completely enclosed in ceramic material. The coil maintains the correct location inside the solder well and transmits its heat uniformly to the metal parts of the well. After mounting no "positioning" is ever required by the service man. The overload latch is machined to form an exact hook to fit the teeth of the ratchet, preventing any binding or hanging up when the ratchet wheel moves on the solder well.

In addition to efficiency, Rancostats are beautifully designed. You can be proud and confident when you install Ranco controls.

ASK YOUR JOBBER

*Ranco Inc.*  
COLUMBUS, OHIO

# The Refrigeration Service Engineer

Vol. 11

No. 12

*December, 1943*

A Monthly Illustrated Journal Devoted to the Interests of the Refrigeration Service Engineer in the Servicing of Domestic and Small Commercial Refrigeration Systems and Oil Burners

Official Organ  
REFRIGERATION SERVICE  
ENGINEERS SOCIETY

## *The Cover*

Observing process of condensation in Research Laboratories of York Corp., York, Pa. Story on page 40.

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# KEEP 'EM RUNNING

**T**HE old story of "a stitch in time" never had greater application than today...so important is the need for keeping all existing equipment running.

While practically 100% of Weatherhead facilities are devoted to production for Victory, we appreciate the fact that the home front is vital also, and as far as possible we are supplying this front with parts, fittings and accessories—to keep refrigeration equipment running. Call on us for what you need. We cannot make long-range promises, but will do our best to take care of your requirements.

**THE WEATHERHEAD CO.**  
300 East 131st Street  
Cleveland, Ohio



*Refrigeration Valves, Fittings and Accessories*

# The Refrigeration Service Engineer

Vol. 11, No. 12

CHICAGO, DECEMBER, 1943

\$2.00 Per Annum

## The Dual-Temp Refrigerator

Here is another article taken from the new Stewart-Warner manual on the Dual-Temp refrigerator. The information is equally applicable to other makes with the exception of the temperature settings given. A table of average "cut-in" and "cut-out" temperatures, compiled by Ranco, Inc., has therefore been added.

### Cold Control Testing and Adjusting

THE cold control is used to regulate the temperature of the surface to which it is attached. It accomplishes this by starting and stopping the refrigerator when the proper temperatures are reached. Do not attempt to adjust a cold control or accuse it of faulty operation unless you have reasonable proof that the temperature of this surface is incorrect.

In the Dual-Temp refrigerator a defective cold control can cause one or more of the following troubles:

- a. Ice forms on cooling surface in upper compartment. (Adjust control.)
- b. Fails to turn on refrigerator. (Replace control.)
- c. Upper food compartment too warm—running time less than normal. (Adjust control.)
- d. Erratic operation with temperature normal at times but too warm or too cold at other times. (Replace control.)

**Important:** This symptom is the same as that obtained when there is moisture in the system.

### Simplified Method of Testing Cold Control

Correct temperature settings of cold control with knob or dial at normal are: Part No. 120648, cut-in 31 in., cut-out, 39 in.; Part No. 600092, cut-in 33 in., cut-out 38 in.

It is essential that the cut-out point of the Dual-Temp cold control be correct but considerable leeway is permissible in the cut-in point.

The cut-out point is easily checked as follows:

1. Make up a tray of crushed ice and add a small amount of water. (Glass drip dish or ice tray can be used for this purpose.)
2. Turn knob or dial of cold control to "cold" position.
3. The bulb of control must then be immersed in the crushed ice bath. To accomplish this: In models 660, 860, 661, 671, 861, 871, release the bulb where it is clamped to the evaporator plate. Then pull the bulb out to the side of the plate so that it can be placed in the ice bath.

In models 681, 881, 691, 891, 662, 762, 862, 872, it is necessary to remove the entire por-

celain housing (containing the cold control) from the refrigerator.

4. With knob or dial at "cold," place the bulb of the cold control in the ice bath for about one minute.

5. Slowly rotate dial or knob to the point where the contacts in the control are heard to "click." (If "click" is not heard, remove bulb from ice bath, warm it with your hand, and repeat 4 and 5.)

6. When "click" is heard, you have found the coldest position that will allow contacts to open when bulb is immersed in ice. Compare this setting with Figs. 2 and 3 to determine whether the cut-out setting is correct.

## Alternate Method of Testing Cold Control

Using a remote reading dial thermometer (such as Stewart-Warner No. T-88172) with bulb clamped to cooling surface (at same spot as cold control bulb is clamped), the "cut-in" and "cut-out" temperature settings may be obtained. See Fig. 1.

When dial of cold control is set to "normal," the refrigerator should start and stop when the following temperatures are approached: cut-in, 39° F.; cut-out, 31° F.

A variation of one degree in either direction is permissible. If error of several de-

TABLE I. AVERAGE "CUT-IN" "CUT-OUT" TEMPERATURES, COMPILED BY RANCO INC.

Application	Cut-Out	Cut-In
Brine Tanks, Wet or Dry system:		
Bulb attached to side of tank.....	17° F.	29° F.
Bulb attached to suction outlet.....	16	27
Bulb immersed in brine, not touching evaporator.....	17	25
Bulb immersed in brine, touching evaporator.....	11	26
Copper Evaporator, Wet System, Bulb on frosted tube.....	14	28
Copper Evaporator, Dry system:		
Bulb on finned dryer.....	20	40
Bulb on ice tray sleeve.....	20	28
Bulb on frosted tube.....	15	28
Porcelain Evaporator, Wet system (high or low side float or capillary tube):		
Bulb on side.....	15	28
Bulb on header.....	15	30
Porcelain Evaporator, Dry system:		
Bulb on side.....	15	28
Steel Evaporator, Plated, Wet system:		
Bulb on side.....	12	27
Stainless Steel Evaporators:		
Bulb on side.....	7	23

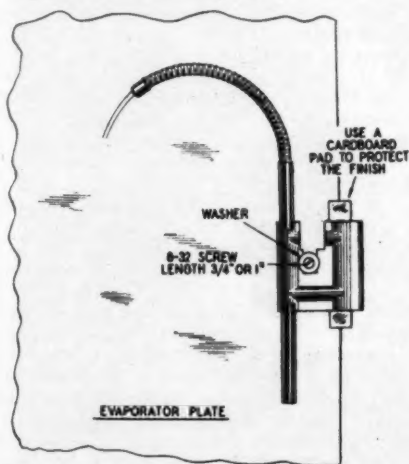


Fig. 1

grees in the cut-out temperature is noted, adjustment can be made as described in the following information.

## Correct Cut-out Point When Control Bulb Is in Crushed Ice

When cold control bulb is immersed in crushed ice and dial turned from cold to region X and Y, you should hear the contacts click open.

If dial must be set to some position outside of this region in order to get the click, setting is incorrect. Adjust range as shown in Fig. 2.

When cold control bulb is immersed in crushed ice and knob turned from cold to region between X and Y, you should hear contacts click open.

If knob must be set to some position outside of this region in order to get the click, setting is incorrect. Adjust range as shown in Fig. 3.

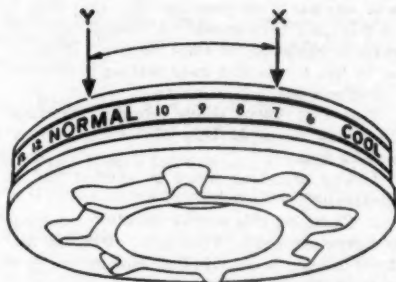


Fig. 2—Used for 1940 and 1941 Dual-Temp Models 660, 860, 661, 671, 861 and 871.

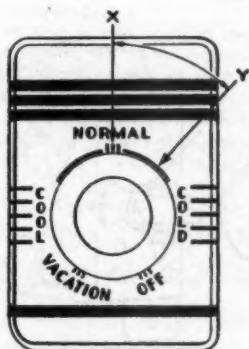


Fig. 3—Used for 1941 and 1942 Dual-Temp Models 681, 691, 881, 891, 662, 672, 862, 972.

### Adjustment of Dual-Temp Cold Controls

Do not adjust control until you check it as described and actually find setting incorrect. Identify control by noting part number and whether it has a metal or a bakelite case. Compare this information with illustrations shown in Figs. 4 and 5. Adjustment instructions are as follows:

#### No. 120648—Ranco—Metal Case

##### Range Adjustment:

1. Set dial to coldest position that will allow internal contacts to "click" open when bulb is in ice.
2. Remove dial by taking off acorn nut. (Be careful not to change the setting).
3. Hold brass hub "B" and remove screw "A." (Do not allow hub to turn.)
4. Remove hub "B" by sliding forward.

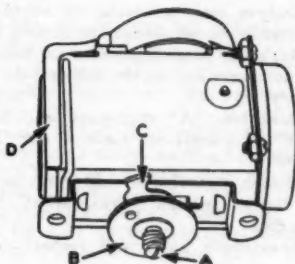


Fig. 4

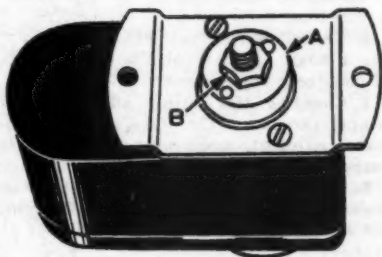


Fig. 5

5. Note the present position of cam "C" by scratching a marker line on both the cam and the control body.

6. Lift off cam "C." Change its position so dial will be set to No. 9 when cam, hub and dial are replaced.

7. Reassemble parts and recheck in ice bath.

##### Differential Adjustment:

This adjustment rarely requires resetting. It should be made only by an experienced service man.

1. Remove metal plate "D." Adjusting screw is near back of control.

2. Changing this setting affects cut-out temperature only. Therefore, after differential is adjusted, range must be changed to correct cut-out point.

3. Turning the screw counter-clockwise widens the differential and lowers the cut-out temperature.

#### No. 120648—Cutler-Hammer—Bakelite Case

##### Range Adjustment:

1. Set dial to coldest position that will allow internal contacts to "click" open when bulb is in ice.

2. Remove dial by taking off acorn nut. (Be careful not to change the setting.)

3. Mark the present position of hub "A" by scratching a line on the hub and the control body.

4. Hold hub "A" stationary and loosen nut "B"—hub must not move as nut "B" is loosened.

5. Change position of hub "A" so that when dial is replaced it will indicate No. 9 on the dial.

6. Reassemble parts and recheck in ice bath.

#### *Differential Adjustment:*

This adjustment rarely requires resetting. It should be made only by an experienced service man.

1. The adjusting screw will be found under a small ( $\frac{1}{4}$  in.) bakelite disc on back of body near power-element.

2. Changing this setting affects cut-out temperature only. Therefore, after differential is adjusted, range must be changed to correct cut-out point.

3. Turning the screw counter-clockwise widens the differential and lowers the cut-out temperature (one turn equals about  $2^{\circ}$  change).

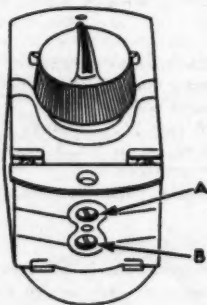


Fig. 6

#### No. 120648 or 600092—Cutler-Hammer—Metal Case

##### *Range Adjustment:*

1. Set dial to coldest position that will allow internal contacts to "click" open when bulb is immersed in ice.

2. If "click" occurred when knob (or dial) was set colder than position "Y" (see Fig. 2 or 3), then turn adjusting screw "A" about  $\frac{1}{4}$  turn clockwise to lower the setting. Recheck as in No. 1. Repeat until setting is correct.

If "click" occurred when knob (or dial)

was warmer than position "X" (see Fig. 2 or 3), then turn screw "A" about  $\frac{1}{4}$  turn counter-clockwise to raise setting. Recheck as in No. 1. Repeat until setting is correct.

##### *Differential Adjustment:*

This adjustment rarely requires resetting. It should be made only by an experienced service man.

1. The adjusting screw is labelled "B" in illustration.

2. Changing this setting affects the cut-out temperature only. Therefore, after the differential has been adjusted, change range to correct cut-out point.

3. Turning counter-clockwise widens the differential and lowers the cut-out temperature. (One quarter turn equals about one degree change.)

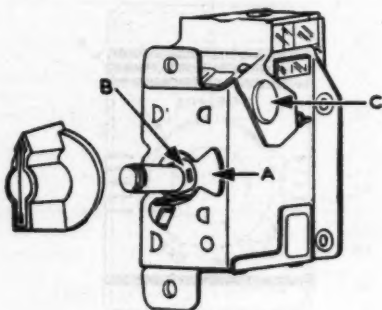


Fig. 7

#### No. 600092—Ranco—Metal Case

1. Set knob to coldest position that will allow internal contacts to "click" open when bulb is immersed in ice.

2. Keeping the knob in this position, pull it off of the shaft (pull away from control body.)

3. Carefully remove washer "B."

4. Cam "A" can now be lifted off and then replaced so that the knob will point to "normal"—(straight-up) when it is replaced.

5. Replace washer and knob. Then recheck in ice bath.

##### *Differential Adjustment:*

This adjustment rarely requires resetting. It should be made only by an experienced service man.

1. The adjusting screw will be noted when the metal side plate ("C") of the control body is bent up.

2. Changing this setting affects cut-in temperature only.

3. Turning the screw counter-clockwise widens the differential and raises the cut-in temperature.

### Removing and Replacing the Cold Control

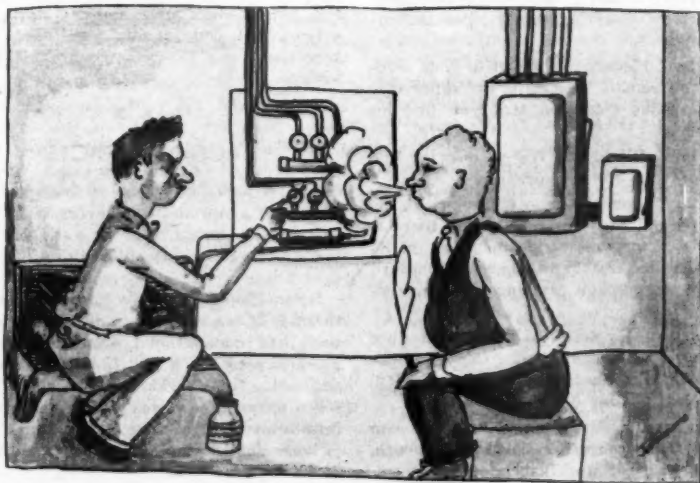
(Dual-Temp Models 660, 860, 661, 671, 861, 871)

1. Disconnect power cord plug at wall outlet.
2. Unscrew acorn nut holding cold control dial and remove the dial.
3. Remove screw holding entire housing (containing cold control and dome light). Allow housing to hang temporarily.
4. Disconnect wires to cold control.
5. Remove screw which holds cold control bulb to evaporator plate.
6. Remove two screws holding cold control to housing and lift out the control.
7. Remove clamp on end of cold control bulb. Install the clamp on the new control.
8. The rubber tube which covers cold control tube, is used to prevent tubing from contacting cold plates. When new control is installed be sure that rubber tube is installed. Failure to observe this precaution may result in erratic operation of the cold control.
9. Replace control by reversing procedure.

(Models 681, 691, 881, 891, 662, 672, 862, 872)

1. Disconnect refrigerator power cord plug at wall outlet.
2. Remove control knob by pulling forward.
3. Remove dial plate by pulling forward.
4. Remove two screws holding light switch to cabinet. Pull switch away from mounting hole in the cabinet.
5. Remove Sterilamp and light bulb.
6. At the back of the porcelain housing, is a screw which holds housing to the wall. Remove the screw and pull entire housing forward. It will slide free and will remain suspended from the bulb and power cord.
7. Remove screw and clamp which holds cold control bulb.
8. Disconnect power cord by separating the plug.
9. Remove porcelain housing from refrigerator. Control does not have to be removed from housing if you only intend to check it by immersing bulb in ice. If the control must be removed, proceed with next step.
10. Remove two screws which hold Sterilamp transformer to side of housing. Push transformer back toward light socket.
11. Remove two screws holding cold control to front of housing.
12. Remove cold control through opening in side of housing.
13. Install new control by reversing the above procedure.

*Just Can't Find That Leak, Can You?*



# Keeping Workers from Getting Hurt

The skill and strength of our industrial workers must be guarded against accidents and diseases so as to carry through the war production program. With this end in view, the committee to conserve manpower in war industries has compiled a list of safety rules to keep workers from getting hurt. This is the fifth and final of a series of articles prepared by the United States Department of Labor so that all workers can check the hazards applying to their own jobs and safeguard life and limb in their own interest and that of war production.

## Ten Fundamental Safeguards

**THIS** final article sums up ten fundamental safeguards for all industrial plant workers, as follows:

1. **Work Safely.**—Find the safest way to do each job, then do it that way until it becomes a habit.
2. **Use Guards.**—Use all machinery guards and protective equipment provided for your use.
3. **Observe Safety Rules.**—Keep from getting hurt by observing safety rules and instructions.
4. **Report Hazards.**—Report to your safety committeeman, foreman, or supervisor any hazardous condition that you find on your job.
5. **Fellow Workers.**—Watch out for the safety of your fellow workers.
6. **Safety Committees.**—Work with the safety committee in your shop. If there is none, try to organize one and assist in its work through safety and health hazard checkups, inspections, and accident investigations.
7. **Personal Hygiene.**—Ability to produce depends upon physical fitness; therefore, use all sanitary and hygienic facilities provided. Do not eat at your bench.
8. **Neatness.**—Since "housekeeping" is an effective safety measure, keep your bench, machine, or other workplace clean and neat.



9. **Cooperate.**—Cooperate with the Government, with your employer, and with your fellow workers in their efforts to reduce industrial accidents and diseases.

10. **Remember.**—Remember that it is your life, your health, your limbs, your pay envelope, and your family's welfare. Make sure that your job is safe—first, last, and always.

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## ACCIDENT FACTS

**THERE** was an accidental death every six minutes and an injury every three and a half seconds during 1942, the National Safety Council reports in its 1943 edition of "Accident Facts."

Occupational deaths occurred in 1942 at the rate of one every 19 minutes, the Council said, and occupational accidents occurred every 31 seconds. Every 18 minutes someone suffered a fatal accident at home and every seven seconds there was a non-fatal accident in someone's home. The largest single cause of home deaths was falls, which took a toll of 24,800 lives last year.

# Service Pointers

## Practical Service Men Tell How They Meet New Repair and Service Problems

**U**NDER this department a number of practical service men show a commendable cooperative spirit in passing on to others information on special repair and service problems that may be of much value in these trying times of material scarcity and shortage of competent help. We believe if more readers would send similar contributions, making THE REFRIGERATION SERVICE ENGINEER a medium for the exchange of information on service, much benefit would accrue to all. Similar contributions are solicited from all readers.

### BUILDING A HOME FREEZER

By Herman H. Bender

**I**N REFERENCE to building home freezer units by E. D. in your November 1943 issue of REFRIGERATION SERVICE ENGINEER.

I converted a six hole Nizer ice cream cabinet to a home freezer for my own use by removing the brine, coil and sleeves and winding 50 ft. of  $\frac{5}{8}$  in. tubing around the top of the liner and spotting it to liner at different places. I also made a shelf about 15 in. wide by 24 in. long, with about six feet of tubing soldered to it, mounted directly under the two center holes about 15 inches down. I use this for fast freezing. I used a thermostatic expansion valve and Freon-12 refrigerant, feeding into the shelf then to the tubing coil and through a heat interchanger to the compressor.

The compressor is a 1/5 h.p. Frigidaire Freon-12 unit speeded up from 400 to 475 RPM. using the same motor, thermostat control. I also installed two inches of cork-board on bottom, sides and end of cabinet in addition to the regular cabinet insulation.

The compressor operates at about a 3 in. vacuum with a cabinet temperature of zero to 3 degrees above. For fast freezing I run the temperature to about 15 below zero. The cabinet is in my basement and the average temperature would be about 60° F. by actual meter test. The current consumption is  $1\frac{1}{2}$  kilowatts per day at zero temperature and about a 200 lb. product load. It will fast freeze about 80 lb. per freezing and while in operation will use about 8 kilowatts per day.

### FLARING BRITTLE TUBING

By Garret Underwood

**T**HIS suggestion may help someone who is having trouble flaring brittle tubing; the kind that splits each time you flare it and you keep cutting and flaring until all the tubing is in little cuts about an inch long. First seal the end of the tubing flat with a hammer. This is to keep the water out of the tubing in the operations that will follow. Then heat the tubing with a blow-torch or Prest-O-Lite torch for a distance of three or four inches from the flattened end until the tubing is practically red hot. Don't be afraid to heat it and raise its temperature as quick as possible.

Just as soon as the proper degree of heat is attained, plunge the end of the heated tube downward into a vessel of cold water. Take ample precautions to keep the water out of the tubing and rub any water on the outside off before slipping on the flare nut and making the flare. I have found this to work practically 100 per cent and certainly can make a bad situation look good again.

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### KNOCK IN OLD CROSLEY

By Hilding C. Anderson

**I** WAS interested in the question by C. W. in the October issue, regarding the same type of knock which has seemed to occur in several old Crosleys. I have met the same trouble and it does appear to be common in all these units. The trouble is a wornout wrist pin in the piston. If you will take this wrist pin out of the piston and replace it with a new one the trouble will be cured.

# News Briefs on War Regulations

## Controlled Materials Plan Amended

**P**ROCEDURES under which persons engaged in the business of making repairs may obtain controlled materials and other materials and parts have been established in a new CMP Regulation No. 9A, announced November 26.

At the same time, an amendment to CMP Regulation No. 9, governing retailers' acquisitions of copper wire, was announced. The new CMP Regulation No. 9A permits persons operating farm machinery repair shops, blacksmith shops, radio repair shops, upholstery repair shops, and electricians, plumbers, and others engaged in any type of repair work, to buy up to 20 tons of carbon and alloy steel, a total of 500 pounds of copper and copper base alloy brass mill and foundry products, and 200 pounds of aluminum in specified forms and shapes in any calendar quarter.

Special provision is made in the regulation to permit refrigeration repairmen, electricians, domestic appliance repairmen, electrical contractors, and radio repairmen to buy \$150 worth of copper wire or one-eighth of what they used during 1941 (figured as accurately as possible by dollar volume), whichever is more.

The regulation permits repairmen to buy as much other material as they need for maintenance and repair work.

The amendment to CMP Regulation No. 9, eliminates from that regulation provisions under which repairmen were formerly able to obtain copper wire, inasmuch as repairmen will now obtain wire under CMP Regulation No. 9A.

To buy materials and parts under CMP Regulation No. 9A, a repairman must put a certification in substantially the following form on his orders:

CMP Allotment Symbol V-3: Preference Rating AA-3 "The undersigned purchaser certifies, subject to the penalties of Section 35(A) of the United States Criminal Code, to the seller and to the War Production Board, that, to the best of his knowledge and belief, the undersigned is authorized under applicable War Production Board regulations or orders to place this delivery order, to receive the items ordered for the

purpose for which ordered, and to use any preference rating or allotment number or symbol which the undersigned has placed on this order."

Repairmen who do work for persons who have the right to use an AA-2x or higher preference rating to buy non-controlled materials and parts for their own maintenance and repair, may use their customers' ratings to buy what they need for repair or maintenance work or to replace inventory used for such purposes.

Special provisions are made in Regulation No. 9A for repairmen whose work is primarily of an industrial nature. WPB may authorize such repairmen to buy up to 2,000 pounds of copper wire and a total of 2,000 pounds of copper and copper base alloy brass mill and foundry products. They may also be authorized by WPB to use an AA-2 preference rating. Applications for such authority should be addressed by repairmen engaged principally in industrial repairs to War Production Board, Reference CMP Regulation 9A, Washington (25), D. C. Application must be by letter and must (1) show what kind of work the repairman is doing and (2) what kind of customers he has.

If a repairman, industrial or other, requires more controlled materials in a quarter than he may get under Regulation No. 9A, he should fill out and send to WPB in Washington, a Form CMP 4B. WPB may then allot additional controlled materials and assign him a preference rating. However, if a repairman gets an allotment, he may not use the provisions of CMP Regulation No. 9A to purchase controlled materials, non-controlled materials or parts.

The regulation specifically prohibits repairmen from fabricating repair parts that they intend to sell to others, rather than use themselves, with the materials that they obtain under the procedures it establishes.

Deliveries of materials may not be accepted if the inventory of the repairman accepting such deliveries would become in excess of a 60-day supply, except in the case of copper wire, with respect to which the inventory limitation is 15 days.

Attention is called to the fact that materials obtained under CMP regulation may

not be used in violation of other regulations and orders of WPB, and that in any case where special application is required to obtain certain materials such applications must be filed in order to obtain them.

Despite the fact that the new regulation makes provisions for repairmen to obtain copper wire, the War Production Board calls their attention to the fact that certain types of wire will not be immediately available, inasmuch as military requirements for them still absorb the major portion of the supply. However, certain types will be immediately available and the procedure to obtain such types is now outlined in the new regulation.

Changes in CMP Regulation No. 9, include the following:

1. Elimination of provisions permitting repairmen to obtain copper wire, since they now operate under CMP Regulation No. 9A.

2. Reduction of amount of copper wire which retailers may obtain to \$50 worth per quarter or one-sixteenth of the amount sold during 1941.

3. Provision that retailers may fill farmers' order for copper wire upon receipt of a copper wire allotment certificate.

§ § §

### Use of Freon Restricted

THE War Production Board on November 30 issued an amendment and an interpretation of Conservation Order M-28 covering commercial uses of dichlorofluoromethane, or as it is more commonly known, Freon-12 gas.

The amendment clarifies those paragraphs which cover the uses of other types of refrigerants, specifically those designated as Groups 2 and 3, under the order. In any instance where all refrigerants in both groups are prohibited for use under the American Standard Safety Code of Mechanical Refrigeration, Freon-12 gas may be used if the system is not one for which all deliveries are prohibited under list "A" of the order. The amendment also clarifies several other minor provisions of the order.

The interpretation limits the purchase of Freon-12 gas to the necessary usable quantity. This interpretation is designed to prevent owners and lessees of refrigerating equipment using Freon-12 from acquiring quantities in excess of their immediate essential requirements. The interpretation also relieves restrictions upon owners of systems who might have had small quantities of Freon on hand for their own uses prior to the issuance of M-28.

A previous amendment, effective November 12, further restricts the use of Freon. All sales for November 12, 1943, through March 31, 1944, are restricted to the following conditions:

(i) Where an air cooled condenser is used and the ambient temperature is 110° F. or higher.

(ii) Where the saturated refrigerant temperature corresponding to the suction pressure is less than minus 10° F.

(iii) Where aluminum or magnesium alloys or rubber have been used in construction of the system and comes in contact with the refrigerant and are not easily replaceable.

(iv) Where the system is for use aboard ship or outside the continental United States by Army, Navy, Maritime Commission or War Shipping Administration.

(v) Where the total operating charge required to operate the system is 10 lbs. or less of F-12 gas and the system was in operation on November 12, 1943, and is used for food preservation.

(vi) Where the use of Group 2 or Group 3 refrigerant as defined in the American Standards Safety Code for mechanical refrigeration, A.S.S.E. Circular No. 15, ASA-B 9-1939, as approved by the American Standards Association, April 20, 1939, is prohibited by that Code.

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### QUESTIONS ON GOVERNMENT ORDERS

#### FREON FOR AIR CONDITIONING UNIT

QUESTION 35: Is it against the law to put Freon gas in an air conditioning unit used for cooling a tap room or tavern?

ANSWER: WPB Order M-28 (July 10, 1943) provides in Paragraph C-2 as follows: "If and whenever any use shall be prohibited as provided in (g) below, no user shall install or use any chlorinated hydro-carbon refrigerant for such use, regardless of the purpose for which it was acquired."

Under Paragraph (g), use of Freon in comfort cooling systems or in systems used solely for storing or dispensing carbonated or malt beverages is prohibited. Briefly, you cannot sell or install Freon in this system. But the owner can have you charge Freon into the system if he had purchased it prior to restriction date and has had it on hand since that date.

The refrigerants may not be allocated for other uses such as maintenance of industrial

(Continued on page 49)

# COMMERCIAL

INCREASE BUSINESS BY  
DOING A MORE EFFEC-  
TIVE JOB OF SELLING

*Selling*

## Wisconsin Home Appliance Dealers Discuss Post-War Outlook

**P**LANS for post-war sales and service in the household refrigerator, radio and home appliance line were discussed at a meeting, claimed to be the first of its kind anywhere in this country, held in Milwaukee, Wisc., on November 17, at which more than one hundred dealers of the state were present.

The meeting was held under the auspices of the Wisconsin Radio, Refrigeration & Appliance Association, which had been very active in its field before restrictions were placed on the sale of home appliances and equipment during the present war. Household refrigeration was one of the important subjects discussed at this dinner meeting, which had been arranged by H. L. Ashworth, secretary of the association.

Factory representatives present assured retail dealers that they could expect wholehearted co-operation from manufacturers of refrigerators and other home appliances, as soon as restrictions placed on the manufacturer of such apparatus and equipment were lifted by the government, but dealers were warned not to be too optimistic about being able to get new merchandise within a short time after factories could again start to make such equipment. Instead,

dealers were asked to start getting "their house in order and having money in the bank," so that when refrigerators and other home appliances can again be ordered, delivery would not be delayed due to the dealer's inability to pay promptly for what is ordered.

### Fair Distribution a Problem

According to E. F. Zabors, of E. F. Schaefer Co., representing General Electric's Wisconsin distributors, the problem for distributors will be one of fair and equitable distribution to many accounts of merchandise either to be released before the end of this war, or the initial small quantities of post-war merchandise. No one, he said, will get all of his requirements for from two to three years, as manufacturers will first have to reconvert to civilian production.

Other jobbers and manufacturers' representatives present held the same views. Even if raw materials for the making of home appliances could be had immediately after the war is over, the completed equipment or appliances could not be made fast enough to supply dealers within the time some of them are expecting to be restocked.

Competition from dealers other than those established in the sale of refrigerators, etc., before the war, should be expected, one speaker said. One of the strong competitors, already giving some competition before the war, will be the furniture dealer, according to Alex A. Greenberg, representative of the National Retail Furniture Association, who said that the "retail furniture store is your logical outlet for products of this kind after the war." This, he stated, was shown in a survey conducted by the association, covering post-war plans in home appliance sales.

Among the discussions from the floor at this meeting, the subject of free service was brought up. Some thought that free service could be eliminated, in an effort to make this a self-supporting division of the business. In the past, one speaker said, free service was one of the important drawing

cards to get prospects to trade at a particular store.

Trade-ins, a fly in the ointment for most dealers, were discussed. This had been so abused, one dealer stated, that it should be curtailed, as most trade-ins could not be resold at anywhere near the allowance made. In some cities, it was said, local associations of dealers had attempted for many years to limit the amount of allowance for trade-ins, but, while on the face of the contract, the limit was not exceeded, some subterfuge could usually be resorted to, in order to make the net cost to the customer lower than that quoted by a competitor. Such unfair competition could be eliminated, one speaker said, by the offering of lower discounts to dealers by jobbers, which would make high trade-in allowances impossible and still leave a fair margin of profit for the retailer.

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## Frozen Rivets Save Time and Money in Aircraft Plants

**I**CE-COLD rivets in cellophane bags are a favorite "dish" for aircraft workers, who have them served from portable freezer cabinets resembling the familiar ice-cream wagon.

This war-time application of the thin, cellulose film is saving bomber manufacturers time and money formerly wasted in re-sorting, re-heating and re-cooling aluminum alloy rivets that had become too warm to be used.

Unlike steel rivets, which must be hammered while they are hot, aluminum rivets must be driven while they're very cold. They are first heat-treated at above 900 degrees Fahrenheit, and then quenched in oil or water, following which they are further chilled to about 45 below zero in a freezing machine.

In this super-cooled state they are quite malleable and can be easily driven. As they warm to room temperature, an "aging" process takes place which increases the strength of the metal far beyond that existing before heat-treatment, but makes them too brittle to drive easily.

The phenomenon of increased strength through "aging" was unknown in the field of metallurgy until it was discovered in the aluminum alloys about 1903. It remained without plausible explanation until 1919, when P. D. Merica and his associates published a United States Bureau of Standards report on their work. Their theory, now generally accepted, is that when the alloy is heated, the particles of the alloying metals, such as copper or magnesium, are driven into a supersaturated "solid solu-

tion." The metal can be held in this state by quenching, which in effect freezes or locks the molecules in place.

When the metal is allowed to warm up, mobility of the atoms and molecules is increased and the alloying metals come out of solution and precipitate in the form of copper aluminide or magnesium silicide. It is the presence of these extremely fine precipitated particles which gives the metal its increased strength. It has been calculated that the maximum hardness of 4.5 per cent copper alloy is reached when the particles of copper aluminide are one ten-millionth of an inch in diameter. If the temperature becomes too high or the metal gets too old the particles increase in size beyond the optimum desired for greatest strength, and the metal becomes softer. However, this does not occur during the ordinary life of most aluminum articles.

Under ordinary methods of handling, most airplane rivets have to be driven within a half hour after they are removed from the freezer compartment. Those unused in this time are tossed into a box, with many other sizes, and all are re-sorted and given another heat-treatment.

### Cellophane Bags Used

The use of bags made of Du Pont cellophane affords enough insulation so that rivets taken out of the freezer cabinet but left in the cellophane envelope can be used as long as an hour or an hour and a half later, an increase of 100 to 200 per cent in their drivable life.

Furthermore, since the bags contain rivets of the same size, the returns are less likely to become mixed, and time necessary for re-sorting is reduced. One plant reports that whereas 15,600 pounds of rivets formerly had to be re-sorted each month, the use of cellophane bags has cut this figure to 600 pounds, with an accompanying reduction in waste from 50 per cent to one and a half per cent. This saved the plant \$7,500 per month in addition to eliminating much of the expensive re-heating and re-cooling.

Packing of the rivets in the bags is carried out, in some plants, by the same type of machines that are used to package beans.

## MILITARY VEHICLES TESTED IN SPECIAL COLD ROOM

**I**N a 25-mile an hour gale at temperature far below zero, Canadian-built military vehicles are undergoing rigorous tests that will fit them for service anywhere short of the North Pole.

The tests aren't taking place in the Arctic, but in a "cold room" in Oshawa, Ontario, Canada, the only one of its kind in Canada and, with a number of unusual features, unique in United Nations' industries.

Conceived and designed by engineers of General Motors of Canada, the "cold room" provides technical experts with first-hand observations on the functioning of army vehicles under the severest types of winter weather. Every factor of temperature and torque (pulling power), can be studied when motor equipment is placed in the room. Engineers say that in many ways the severest of winter conditions can be simulated from the control board outside this super ice-box.

Through readings on the intricate control board, the temperature of the cylinder block or any part of the vehicle being tested can be watched second by second. A window comprised of five separate sheets of plate glass allows observers in the control room to watch what is going on inside the cold room.

Engineers wearing the latest fleece-lined type flying suits can spend relatively short periods in the paralyzing cold. Those working in the cold room must be under observation from the outside at all time and the doors to the chamber are equipped with safety devices which prevent even a moment's delay in leaving. In addition, equipment for the detection of carbon monoxide fumes has been installed.

A special cooling machine with an estimated four miles of pipe regulates temperature in the room. Powerful ventilators change the air and regulate moisture. The room is surrounded by 15 inches of cork insulation. The control board also can govern the intensity of the artificial gale which is whipped up by the big wind machine.

# Army Installs Refrigeration Equipment South Pacific Style

By Sgt. Charles B. Dunham

**I**MAGINE stepping out of your front door and frying eggs on the sidewalk! Well, that's exactly what American soldiers can do on the coral reefs in the South Pacific. With such heat, it's natural that constant refrigeration of eggs and other perishable foods is essential. With temperatures reaching 120 and 125 degrees in the shade, perishable foods spoil if left two or three hours without proper refrigeration.

In order to provide our fighting men in this theater of operations with adequate quantities of properly protected nutritious foods, the U. S. Army's Quartermaster Corps must install, maintain, and repair all refrigeration equipment for the Army, including the Air Corps. Quartermaster refrigeration companies and separate platoons of skilled refrigeration mechanics are stationed throughout the vast area.

## Army Installs Refrigeration

Corp. Lawrence Purcell, now at the Refrigeration School, Quartermaster Replacement Training Center, Camp Lee, Virginia, was assigned to such a Quartermaster refrigeration platoon based on New Caledonia, for seven months before returning to the States. He points out that, in addition to keeping food from spoiling, refrigeration is used by the Army in the South Pacific in medical detachments, in hospitals, and for preserving bodies until burial conditions are suitable.

Corp. Purcell's refrigeration platoon, though based on New Caledonia, was called upon to set up or repair refrigeration equipment at many bases in other sections of the South Pacific. He stated that he found many types of refrigeration equipment in use there: American domestic and commercial, Australian and New Zealand, which incidentally, were apparently older type models than ours.

Most of the equipment consisted of port-

able units for cold storage plants. However, on one island there were two ice plants. Corp. Purcell constructed an ice plant on another island. He took a 2½-ton compressor and utilized a 12-by-16-foot brine tank obtained from the Engineers. He then set up the tank and the compressor and placed the lines and controls in as he could get them. He had to use copper tubing in the tank since no pipes or similar equipment was available. He secured an agitator from a Navy tender, and had the ice tank placed next to the storage refrigerator. To obtain current for the agitator he utilized a gasoline motor. This improvised equipment was only make-shift, but it worked, manufacturing 700 pounds of ice every 30 to 36 hours.

## Repair Operations

Repair operations on the islands consisted largely of work on seals, pressure controls and starters. This was due to the fact that the extreme heat affected these parts most.

Aside from the Japs, American soldiers on the islands were most concerned with the heavy rains. For they brought mosquitoes, with subsequent malaria and dengue fever. Next to the rifle our troops in the area considered the mosquito bar (or net) to be their best friend Corp. Purcell reported. They never went anywhere without head nets for use during daylight hours and mosquito bars if they had to spend the night away from camp. Sometimes, during the long rainy seasons, soldiers would sit through movies shown out-of-doors wearing hip boots, sun helmets, and head nets.

The friendly natives gave American soldiers every consideration and help. Many of the natives customs were interesting to the soldiers. The young girls wear white dresses, symbolic costume of a virgin seeking a husband. Young men looking for brides wear their hair long, dyed red at the

top. When the men marry, they cut their hair short, and no longer dye it. Married women discard the white dresses and wear flowered ones, indicative of the fruition of life.

Up in the hills, farther away from civilization's influence, males and females wear little, if anything. A soldier gave one of the hill natives a brassiere he obtained from somewhere. The native presented it to his wife. She was discovered a little later sporting it around her hips!

### Picturesque Ceremonies

The natives have many picturesque and, to Americans, strange ceremonies. Nuptial dances are frequently held in the villages. These last all night. The men and women to be married on these occasions bedeck their hair with flowers interspersed with bones. The weird dances continue for hours, with the couples gradually slipping away to the

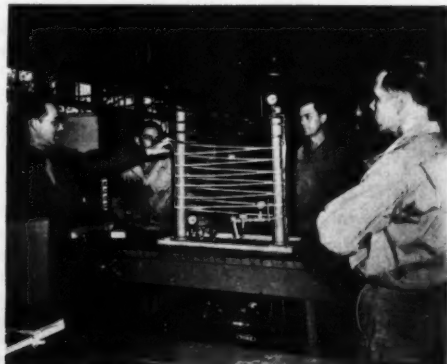
woods in the early morning, as their taboos require them to spend their bridal night away from the village.

Native matrons, with babies strapped to their heads, often appear on the streets of New Caledonia's principal town pushing little carts containing bananas, coconut juice, or whatever else soldiers will buy.

Corp. Purcell says the work of the Army Quartermasters in the South Pacific is no sinecure. "You have a job to do and you do it, the more quickly you get it done and over with, the more quickly the war will be won, and you can go home." He stated the training he received in the Refrigeration School at Camp Lee's QMRTC, before he was assigned to the South Pacific, was invaluable to doing his job there.

Corp. Purcell is a native of Jayton, Texas, where his wife and daughter now reside. Before entering the Army he was employed by the Espuela Creameries, Spur, Texas, as a refrigeration mechanic.

Soldier trainees receive instructions at the Quartermaster Replacement Training Center refrigeration school, Camp Lee, Va. Below, Corp. Lawrence Purcell shows adjustment of various types of pressure controls used in refrigeration systems. Right, Pvt. Donald Hunt explains operation of thermostatic expansion valves. Below, lower right, Corp. Alliston Murchie demonstrates various types of insulation.



# Portable Refrigerators Aided Allied Invasion—Other New Uses

THE problem of feeding the Allied troops in the invasion of North Africa and Italy was solved in advance on this side of the Atlantic when small cold storage rooms were individually constructed, filled with frozen food, and then hoisted bodily aboard ship to make the long sea voyage, the mechanism in each unit humming all the way across the Atlantic and the Mediterranean.

The huge refrigerators were landed after the beaches had been secured and, presumably, are still being used in that each unit is independent of any power supply and requires only gasoline for operation.

This was revealed by W. Smallwood, who cooperated with the Royal Canadian Navy in designing the equipment which now produces palatable drinking water from sea water by mechanical means. The same process, by use of a hand-driven refrigeration condensing unit, is now in the experimental stages and will be infinitely important when successfully concluded, he said.

## Will Help After the War

Speaking to the Electric Club in the Royal York Hotel in Toronto, Canada, Mr. Smallwood stated that he was not at liberty to reveal all the wartime contributions being brought about by refrigeration and dehydration experts, but he predicted that the preservation and condensation of food would have a tremendous post-war growth which would be enhanced by the food needs of currently Axis-occupied countries.

While he was not yet prepared to agree with all the claims put forward for home dehydration cabinets, he predicted a post-war demand for individual farm freezers whereby, at low cost, fresh meat could be preserved and the farmer would no longer find it necessary to sell his beef or pork on the hoof and then buy it back, at greatly increased prices, in the form of fresh meat. He said that, in the past 10 years, mechanical refrigeration efficiency has been brought to the point where a domestic refrigerator

can be operated for about 85 cents a month with 50 per cent more refrigeration.

In wartime industry, mechanical refrigeration has been responsible for increased production and a sharp decrease in scrapped parts, he said. This has been applied to welding, cooling of hot shell casings, improving the temper of metals, testing the defects in shells. Formerly, aluminum rivets used in the aviation industry had to be driven soon after forming because they aged and became too hard to drive. Now they are stored in low temperature portable refrigerator cabinets, where they retain their necessary softness.

Competent authorities estimate that the food emergency will continue for ten years after the war and dehydration will play an important part, said the speaker. "In every convoy leaving for Europe, nearly half the ships are required for food. Dehydrated products require only about 10 per cent of the shipping space."

"Dehydrated vegetables in 1942 increased in volume four times over that of 1941; in 1943, a 16-fold increase is scheduled over 1942," said Mr. Smallwood. "In North America this will mean nearly 2-billion pounds. It is estimated that five tons of dehydrated orange juice will serve the needs of Britain for two weeks. Nine freight car loads of eggs in the shell are reduced to one when in powdered form. We further reduce dehydrated foods into solid blocks with a density nearly equal to that of coal; almost a whole meal can be carried in the vest pocket."

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I certainly like THE REFRIGERATION SERVICE ENGINEER and wish it would be a bi-monthly magazine, as the time between magazines is too long. I would like to see more articles like the one by Wm. E. Anglin in the March issue and some dope on changeovers from sulphur to other gasses.

JOHN P. KERN, Wisconsin.

# The Question Box

Readers are invited to send their problems pertaining to the servicing of household refrigerators and small commercial refrigerating equipment to "The Question Box."

## COMMENTS ON QUESTION 560

**I**N reading over the September issue of THE REFRIGERATION SERVICE ENGINEER I noticed your question No. 560 which related a serviceman's experience on a General Electric type CA-1 refrigerating machine.

Much of the information given in your answer to this question is perfectly correct and well presented. However, I did want to call to your attention a few things which it might be well to give consideration to on any future questions.

From the description of the complaint I would say that it is very hard to diagnose just what the trouble might be. However, I doubt that either an overcharge or a stuck open float valve would cause the machine to run under the heavy load that is indicated. Excessive non-condensable gas in the machine could cause the stalling and the no refrigeration, although the man writing the question infers that the float valve, as well as the condenser, ran quite warm. The stalling itself, or the very heavy load, could of course be caused by some internal mechanical trouble, but this would not ordinarily affect the refrigeration to any degree so long as the machine was running.

Your description of purging the refrigerant for an overcharge is correct and very much in line with what we recommend, except that we should always make the point to heat the machine before the purging screw is opened to make absolutely sure that air is not drawn into the machine. As mentioned above, both overcharge and stuck float valves on the CA machine are relatively infrequent troubles.

Clinton E. Ring  
Appliance Product Service Section  
General Electric Co.

## DEHYDRATION OF COMPRESSORS

**QUESTION 574:** I want to bother you again about some refrigeration problems that have been on my mind for some time. You have always helped me in the past for which I am very grateful as I know of no other place to go to get as much help. I note

that other readers of the REFRIGERATION SERVICE ENGINEER are likewise of the same opinion. My problems are as follows:

Under the subject of dehydration of compressors, it is quite common in all the articles that I have read in your magazine that after the unit has been dehydrated, the oil is charged into the compressor body. I cannot understand why the oil cannot be charged first, and then dehydrated. The oil would surely stand the 200° F. temperature and may receive some dehydration itself in case moisture was present. The only drawback to this process that I can see would be the vaporization of the oil under the very low pressure present in the operation. I wish you would tell me the objections, if any.

Would it not be better with an old Rice unit having a continuous tube evaporator and a capillary tube for a restrictor that an automatic expansion valve be substituted for the capillary, provided a receiver could be also installed? The Rice uses methyl chloride.

Did the REFRIGERATION SERVICE ENGINEER ever carry an article on the Wurlitzer refrigerator? This is a domestic unit and I cannot get any information from the Wurlitzer company as they will not answer my letters. The box that I have has been altered so much that I really cannot tell what it was like when new. Can you tell me anything about it?

**ANSWER:** Oil is never inserted in the compressor before it is dehydrated for the reason that compressor bodies are usually made of cast iron, and cast iron is highly porous in structure. Moisture will be held in the pores of this iron, and if oil is placed on top of it, the pores are sealed and the moisture sealed in the compressor.

Rather than removing the moisture under this condition, you are more likely to seal it in the system, where it can later be absorbed by the oil—then circulated through the system. It is a much more difficult job to dehydrate oil than it is to dehydrate a clean refrigerating system. In fact, I don't believe your ordinary methods of dehydrating a

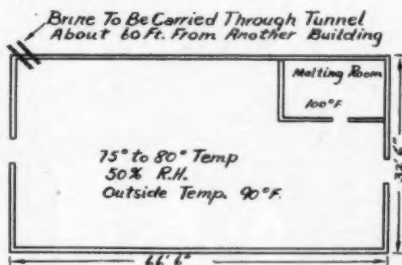
compressor would bring any results in removing moisture from the oil itself.

If the old Rice unit is equipped with a continuous tube evaporator, then I believe the automatic expansion valve would be more satisfactory than a capillary tube. It will be necessary to install some sort of a receiver, but this could take the form of a small tank connected into the liquid line, near the outlet at the bottom of the condenser.

We have never had an article on the Wurlitzer refrigerator in our magazine. They are a very simple system, however, and do not differ greatly from any other open type unit. The oil and refrigerant charge for this unit was contained in one of the issues in 1937, but apart from this information, we have not published anything of value to you.

## AN AIR CONDITIONING PROBLEM

**QUESTION 575:** Enclosed find plan for building to be air conditioned. This building is to be used as a printing shop with a melting room (not conditioned) inside the building. The brine used for refrigerating is to be taken from a unit in a building located 60 ft. from one to be conditioned. The upper story is to be used for storage and is ventilated. What is the heat load in tons of BTU's?



We have 2-3 hp. Frick condensing units which are used for cooling a large walk-in air cooler with a meat, vegetable and dairy, and now another meat room. One compressor is supposed to be used at a time, the other a stand by, but they have increased the load so much by this extra meat room that one unit runs all the time. If both units are used, they have too much capacity and draw down too quickly. How could they both be used on this load? Any information you can furnish me at once will be greatly appreciated, as I want to check on my figures. Thank you very much.

**ANSWER:** You have not supplied us with sufficient information on the air conditioning system to make very accurate calculations. In fact, in order to arrive at any figure at all, we have had to make certain assumptions. These assumptions are as follows:

Assumed:

Commercial Bldg. 13' ceiling.

Floor on ground—no loss.

Complete sun exposure.

Lighting—none required when sun is shining.

Small exhaust fan in melting room—550 c.f.m.

Duty of motors at 70%.

Using these assumptions along with the figures you have provided, we arrived at the following heat loads to be encountered:

	Btu/hr.
Walls	
10" concrete.....2320x	6=13,920
Windows and doors... 280x	20= 5,600
Sun Effect—South wall only	
10" concrete..... 870x	4= 3,480
Windows .....	100x100=10,000
Ceiling .....	2170x 3= 6,510
Other heat sources	
Motors .....	.80x750x3.4x70% 53,000
Ventilation @550/min. x .3 x 60	9,900
	<hr/> 72,410

This gives us a total load imposed on the unit of six tons, which seems rather high for this size of structure. If awnings are placed on the south windows, however, the load could be reduced about one ton, and these awnings are, therefore, justified.

You will note that considerable heat is given off by the motor load in the building, and if this main motor load is in one unit, it may be well worth while to enclose the motor in a sheet metal casing with a ventilating hood in order to cool it with air brought in from the outside, and exhausted again to the outside. This would reduce the cooling demand on the air conditioning unit to quite some extent.

With reference to the Frick condensing units, I don't know how you can connect these units so that they will operate on an intermittent cycle, unless you so arrange it so that one unit operates for approximately an hour, then shuts off throwing the load over to the other unit, which will in turn operate for an hour.

I take it for granted these units are cross connected, and in order to provide alternate operation, it would only be necessary to in-

**It's Time To Tell About REFRIGERATION'S HIDDEN SERVICES**



*December, 1943*

# Take RUBBER for instance...

THE rubber industry has long valued refrigeration as an important working partner. Refrigeration helps prevent deterioration of raw rubber in storage, recovery of volatile solvents from rubber solution — is used in roller cooling and processing — cools large blocs of rubber to prevent softening and tackiness before cutting — and many other operations. Refrigeration also has aided in solving many of the highly complex problems encountered in wartime's great synthetic rubber program.

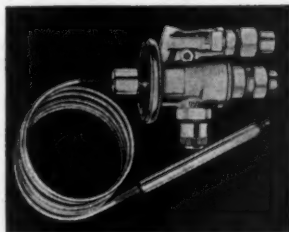
**A-P DEPENDABLE Refrigerant Valves are, of course, performing their**

usual accurate, supersensitive control task in many "hidden services" of refrigeration in the rubber industry. But today, it's post-war applications of refrigeration that are receiving major attention at the A-P Research Laboratories. We invite you to put this continuing research to use on YOUR Post-war plans involving precision engineering in controls.

**AUTOMATIC PRODUCTS CO.**  
2454 N. Thirty-Second St., Milwaukee 10, Wis.  
Export Dept.: 15 E. 40th St., New York 16, N. Y.



**DEPENDABLE  
REFRIGERANT VALVES**



STOCKED AND SOLD BY PROGRESSIVE REFRIGERATION JOBBERS EVERYWHERE  
— USED AND RECOMMENDED BY LEADING SERVICE ENGINEERS.

stall a time switch which would throw the load on one unit for an hour—then to the other unit for an hour.

### FRIGIDAIRE DOES NOT START

**QUESTION 576:** I have a Frigidaire H-163. When it is defrosted, it builds up a pressure, and the motor cannot start. After it gets started, it runs all right until it is defrosted again—then the same thing happens over again. I hope you can help me.

**ANSWER:** According to my data, this is the open type unit with a highside float, and in this type of system, it is natural that the pressure will build up until it is almost equal to the highside during a long off period, such as when the unit is being defrosted.

Since the machine operates satisfactorily at all other times, I am inclined to believe your trouble is either in the motor, or switch contacts. It may be that the motor contacts are dirty, that something is wrong with the capacitor, or it is some other trouble in the motor circuit which does not allow sufficient power to start the compressor under the higher back pressure.

One other possibility is that if the compressor is in a colder location than the evaporator, refrigerant may condense in the compressor crank case, which would cause difficult starting conditions. I think your most likely source of trouble, however, is in the motor.

### WHAT TO DO ABOUT A NORGE FLOAT

**QUESTION 577:** We have a Norge Synchronizer model S6 which, as you know, carries a highside float—also capillary tube from float to evaporator. We are experiencing some trouble with this type of box, especially the highside float. We believe that the float can be taken out, but we don't know the length of the capillary tube. We hope you can tell us if this would be practical. If so, how much more capillary tubing will we have to add?

**ANSWER:** The following is a reply we received from the Norge company in answer to your letter: "The highside float assembly on our Model S-6 refrigerator can be replaced as a service item and can be obtained through any of our authorized distributors or service stations with the necessary fittings to adapt it to systems already in operation in the field. The tubing to the old float assembly is cut and flared and we use standard copper tube fitting for making the replacement.

Most sections of the country are adequately covered by distributors or authorized service representatives who are experienced in handling Norge service. If it is possible, we would prefer referring these independent service men to these distributors for help. They would be in a position to furnish them with genuine Norge parts or service literature to assist them with their problem."

### REDUCING HUMIDITY

**QUESTION 578:** I would like some information regarding lowering the humidity in a walk-in cooler used to store photographic supplies. This box is a 6x8x10' cooler that was formerly used to store meat in a grocery. It is now installed at the Leiber Co. here, and they would like to have a 35% humidity with 55° temperature.

This box is equipped with  $\frac{3}{4}$  hp. flowing cold F-12 Frigidaire compressor, and the standard size header type direct expansion Frigidaire coil. The humidity inside the box is always approximately 20% higher than outside air. Is there any literature that I can refer to or can you tell me what changes to make that will accomplish the results wanted?

We can't operate at a lower temperature because when the material is moved from the box, there is quite a lot of condensation on it from the outside air. My opinion is that the machine is too large and so is the coil.

**ANSWER:** The control of humidity in any refrigerated space is obtained by the relation of the coil area to the space to be refrigerated. In other words, the larger the coil area, the higher the humidity obtained, and the smaller the coil area, the lower the humidity will be. These relations, of course, are based on a definite temperature to be maintained in the refrigerator.

Where you have a large coil area, the temperature of the refrigerant in the coil will be higher, in order to maintain a definite temperature in the space, and because the refrigerant temperature is higher, there will be less frost accumulation on the coil and less moisture removed from the space.

If the coil area is small in relation to the refrigerated space to be cooled, the refrigerant temperature or coil temperature must be much lower in order to maintain a given temperature. This then, gives you a suggestion of how to reduce the humidity in the 6x8x10 cooler.

It will be necessary to reduce the effective coil area and reduce the coil temperature, so that more moisture will be accumulated

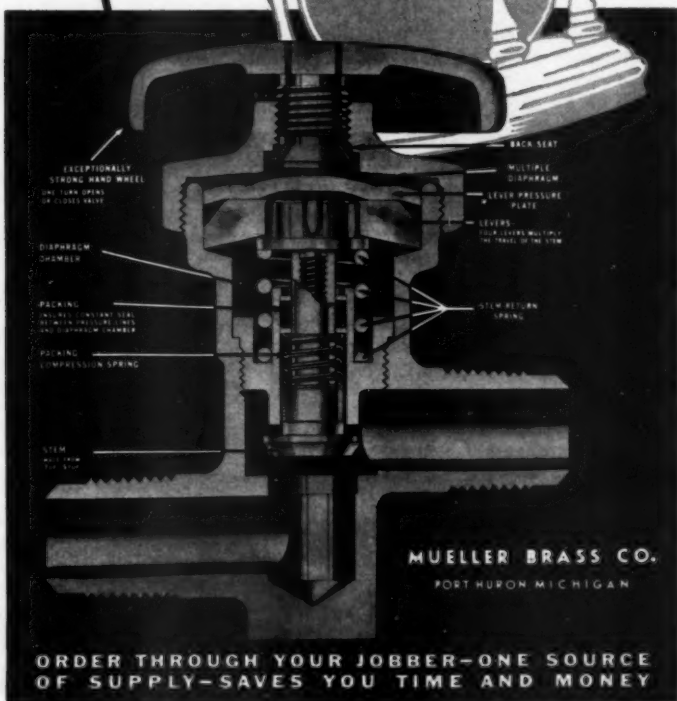
(Continued on page 48)

# Increased DIAPHRAGM LIFE PROLONGS THE SERVICE LIFE OF THE VALVE

● Because of the small amount of movement, the multiple diaphragm in our Triple Seal Valve is never deflected past its normal center, thus immeasurably prolonging both its life and the life of the valve in service.

This valve has positive sealing at three essential points—a back seat with valve in open position—the multiple diaphragms—and the superior packing around the stem. This packing assures constant seal between pressure lines and diaphragm chambers.

One turn only completely opens or closes the valve.



# National Refrigeration War Council Announces Training Program

—Charles Logan Elected Chairman Succeeding  
John Wyllie, Jr.—Post-War Planning Considered

AT a meeting of the National Refrigeration War Council, held at the William Penn Hotel, Pittsburgh, Pa., November 18, Charles Logan, president of the American Society of Refrigerating Engineers, was elected chairman, succeeding John Wyllie, Jr., who resigned. Mr. Wyllie advised the meeting that he was resigning as chairman because of circumstances beyond his control in connection with his own business and its relation with the war effort. While the meeting expressed its belief that the office of chairman was to continue for the duration because of the fact that the Council was set up just for that period and that he might continue, he definitely stated that he could not and requested that a new chairman be elected to fill his place.

Harry Alter, president of the National Refrigeration Supply Jobbers Association, was elected vice-chairman, and R. K. Hanson, executive secretary of the Refrigeration Equipment Manufacturers Association, was appointed secretary for the next six months.

## Work of Council Reviewed

Before retiring as chairman, Mr. Wyllie advised the Council of the work accomplished since the last evening. He called attention to the progress which has been made in connection with the War Manpower problem covering refrigeration service engineers and the plans which have been developed by the War Manpower Commission with the cooperation of R. Kromer of Cleveland, who is acting as a consultant to the War Manpower Commission.

Following his election as chairman, Mr. Logan thanked Mr. Wyllie and the other members of the Council for their splendid support of the Council's program. He then appointed a committee of four, consisting of Mr. Wyllie as chairman; W. H. Aubrey, Waynesboro, Pa.; E. A. Plesskott, St. Louis, Mo.; C. P. Spalding, Beloit, Wis., who were

to meet with Mr. Kromer to make plans for obtaining funds to administer the training course program with Government cooperation, so that trainees might be obtained in strategic centers where there is a shortage of refrigeration service engineers.

The meeting also gave attention to the subject of post-war planning and announced that at the next meeting, which will be held at the Benjamin Franklin Hotel in Philadelphia, Friday, December 10, this, as well as a number of other important subjects, will be discussed.

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## TRAINING COURSE IS OUTLINED BY WAR MANPOWER COMMISSION

BECAUSE the number of experienced refrigeration repairmen has dropped to approximately one-fourth of the number available in peace time, a nation-wide program to train eligibles for this work was announced November 26 by Paul V. McNutt, Chairman of the War Manpower Commission.

Three principal types of training, the Chairman said, are available:

1. Supplementary evening courses, for new workers employed as trainees in the refrigeration industry, combined with orderly, planned on-the-job and upgrading training. (Enrolled in the same courses at vocational schools under the Vocational Training for War Production Workers program may be those in less essential industry who wish to transfer to critical work.)

2. Paid-employee training—full time—for workers on the payroll of the local contractor, under the Vocational Training for War Production Workers program.

3. Special vocational training courses for high school seniors, within the regular vocational school program, to prepare them for refrigeration repair work upon graduation.

# *We of Temprite*



★ JOHN WYLLIE, JR.



★ JAMES J. GOODWIN



★ H. D. GRAVES



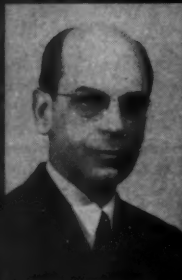
★ EARL JENNINGS



★ O. F. NELSON



★ LESTER J. STEGG



★ F. O. GRAHAM



★ J. W. ARCHIBALD



★ D. H. MORGAN ★



★ P. FRED LESLEY

# *Wish You a Merry Christmas*

For all of these types of training, a standard course, worked out by Vocational Department of the U. S. Office of Education, the Bureau of Training of the War Manpower Commission, and the National Refrigeration War Council will be used. The course covers a total of 200 hours of classroom and laboratory work.

In addition, there will be offered through major colleges in connection with the Engineering, Science, Management War Training program, short college-level courses desired by the refrigeration industry. These courses will run from ten to sixteen weeks and enrollees in such courses must have had at least high school education.

### Training for Instructors

Instructors brought into the program from the refrigeration industry will receive the benefit of the supervisory training provided by Training Within Industry Service. Mechanics who will supervise the on-the-job training will also attend TWI's intensive Job Instruction Training, Job Methods Training, Job Relations Training, and Training for Training Directors programs.

Those employers who desire to establish complete on-the-job training programs which will provide for the orderly upgrading and promotion of employed workmen on a planned basis, will utilize the specialized training service available through Apprenticeship-Training Service.

To the National Refrigeration War Council, said Mr. McNutt, must go much of the credit for working out this program to meet a great American war production and consumer need. The Council appointed a National Refrigeration Manpower and Training Committee. This Committee appointed W. S. Kromer of Cleveland, Ohio, as national training director. The Bureau of Training of the War Manpower Commission immediately appointed Mr. Kromer as consultant to the Bureau.

In facilitating the administration of the program, the industry will organize itself down to each small town or community. Local Emergency Refrigeration Service Councils, composed of local electric refrigeration service agencies and associated industries, will be organized by a Local Temporary Coordinator who will be supplied by the local power companies. A permanent coordinator will be selected by the Local Council and as its representative will act as liaison officer for the Local Committees with local offices of Government agencies.

Each local Council will have a Training Committee, a Selective Service Committee, a Price and Wage Committee, and a Membership and Supplies Committee. The Local Training Committee, working with the National Council's Field Coordinator, follows the national pattern of organization and action and arranges for a local training program and for the recruitment and selection of trainees for the program.

Selection of boys in the 16-17 year-age group as trainees, also men in 4-F draft classification, and older men, is essential for the success of this training project, the Chairman stated. All recruiting must conform to USES clearance procedure and the local WMC Labor Stabilization Plan, he emphasized.

§ § §

### POST ENGINEERS START ARMY REFRIGERATION SCHOOL

A FOUR weeks refrigeration school for enlisted men has been started by post engineers at Camp Cooke, Calif., under direction of Capt. I. L. Collier, Post Engineer Executive Officer. The course is being taught by W. C. Roberts, camp refrigeration engineer; Lt. S. B. Schurgin, post engineers office, and Pfc. John Ludthe, post engineers office.

Mr. Roberts said that while a complete refrigeration course cannot be given in four weeks, the combination classroom and shop course can familiarize individuals with operation of the units and help them to do some trouble shooting. The course will cover B.T.U., heat loads and mechanical, portable and stationery refrigeration.

§ § §

### ASK EASING OF RESTRICTIONS ON REFRIGERATOR MANUFACTURE

A COMPREHENSIVE brief, requesting a substantial relaxation of Limitation Order L-88, which restricted the manufacture of walk-in and reach-in refrigerators, was presented to the War Production Board November 4, 1948, by the Commercial Refrigerator Industry Advisory Committee.

The request for relaxation of the limitation order on manufacturing has been taken under advisement by the General Industrial Equipment Division of the WPB. WPB also announced that a task committee will shortly be chosen to study the 1944 replacement equipment requirements for food storage equipment.

# A Backlog



## of Friendship

TIME was when an accumulated backlog of orders measured the public acceptance of any product.

But, above the thickness of the order bank, we at Tecumseh Products Company have always treasured the backlog of friendships built up by Chieftain products in the hands of users.

- Products requiring a minimum of service;
- Products standing up to all emergency wartime needs;
- Products lasting longer, and performing better than could reasonably be expected.

That is, indeed, a priceless foundation for any postwar program!

We are still building Chieftain compressors and condensing units for the armed forces and for priority civilian requirements, and we are always available for consultation on any present or postwar refrigeration needs.

Against this limited scale of normal operations, however, we are looking expectantly to a tremendous upsurge in product "friendships" when peace once more prevails.



# Chieftain

**TECUMSEH  
PRODUCTS CO.  
TECUMSEH • MICHIGAN**

## FARM FREEZER MANUFACTURERS FORM ASSOCIATION

A MEETING of farm freezer manufacturers was held at the Statler Hotel, Cleveland, Ohio, October 27, at which time a new organization allied to refrigeration and food preservation was formed, known as the Farm Freezer Manufacturers Association. The following officers and directors were elected:

President, Henry Steinhorst, Emil Steinhorst & Sons, Utica, N. Y.

Vice-president, H. L. Schaefer, Schaefer Inc., Minneapolis, Minn.

Secretary, F. J. Bommer, Jr., Sanitary Refrigerator Co., Fond du Lac, Wis.

Treasurer, J. A. Archbald, Jr., Jewett Refrigerator Co., Buffalo, N. Y.

Directors: S. C. Bell, Quillen Bros. Refrigerator Co., Indianapolis, Ind.; R. R. Jamison, Esco Cabinet Co., West Chester, Pa.; J. K. Noel, Jr., Victor Products Co., Hagerstown, Md.; and J. E. Wilson, Jr., Wilson Cabinet Co., Smyrna, Del.

It will be the aim of the new association to work with the various government departments now handling the emergency food program. Other objects include exchange among members of information leading to the establishment and maintenance of high grade standards of production, prevention of waste in manufacture, and distribution of products.

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## RESEARCH LAB PHOTOGRAPHS REFRIGERANT VAPORS

AT what rate of speed does a refrigerant vapor give up its heat load? In the research laboratories of the York Corporation at York, Pa., shown in the front cover picture of this issue, Dr. R. E. White is searching for the answer with the aid of a movie camera and a specially built condenser which enables both camera and research men to observe the process of condensation through glass portholes.

Object of this project is to design more efficient condensers. At present, vapors condensing on the walls of a condenser build up their own insulation, thus cutting down the efficiency of the heat absorbing process. Engineers still seek a method by which vapors will form in larger drops and leave more condensing area free. This is one of many specialized research projects on fundamental refrigeration problems now being undertaken by York.

## REFRIGERATION ANESTHESIA TESTED IN CANADA

REFRIGERATION anaesthesia, which has been used experimentally within the last year by the New York City Hospital for amputation of limbs, has found little favor with Toronto anaesthetists. A survey of the major Toronto hospitals this week revealed that only one hospital had experimented with this means of anaesthesia.

By cooling the tissues through the use of refrigerated ice-packs and cold water applications, it has been possible to amputate limbs without the customary anaesthesia. A refrigeration anaesthesia machine which obviates the use of ice packs and cold water applications has recently been developed in Chatham, Ontario, and will be demonstrated in Toronto in the near future.

However, the chief anaesthetist of a Toronto hospital said that refrigeration anaesthesia had only a limited use and held advantages only for the "very old and very ill."

"The use of refrigeration anaesthesia is very limited," he said. "It can be used only in an extremity. The average person has no need for this method. They can take the ordinary anaesthesia quite well."

He emphasized that the principle involved is not new but dates back to the days before the commonly used anaesthetics were discovered.

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## CHASE REFRIGERATION SUPPLY CO. HAS NEW OWNERS

THE Chase Refrigeration Supply Co., 546 119th Street, Chicago, Ill., has been purchased by C. S. Swanson and Jack Glass. The new owners will continue operating as the Chase Refrigeration Supply Co. at the same location.

Mr. Swanson for 26 years was connected with the Standard Forgings Co. of East Chicago, Ind., and held the position of general superintendent.

Mr. Glass for the past four years has been with the Fred C. Kramer Co. as manager of the refrigeration and air conditioning department.

The Chase Refrigeration Supply Co. is a member of the National Refrigeration Supply Jobbers Association and a part of its expansion program consists of inaugurating a perpetual inventory system which will keep their shelves completely stocked with refrigeration supplies.

# Train **NOW** for Bigger Opportunities in Refrigeration and Air Conditioning

To the trained man go the rewards of Bigger Pay, Promotion and a more promising future. Why not be a *more efficient* Refrigeration Serviceman—in line for greater recognition and better earnings—by training the U.E.I. way **IN YOUR FREE TIME?**

Figure it out for yourself. Surely you must see that to make more money in this business now **AND IN THE FUTURE**, a man **SHOULD**

have a solid foundation of basic refrigeration knowledge. The *extra* profit you make in this business depends on how much more you *know*. You can safely bet that the new developments and new applications which are bound to blossom out after the war will offer the really trained man exceptional opportunities to capitalize on his understanding of refrigeration principles.

Are **YOU** going to be ready? **WILL YOU** be prepared to make the most of the chances offered by your industry?

## FAMOUS BALANCED TRAINING METHOD

Utilities Engineering Institute has developed a famous *Balanced Training Method* that is helping men become **BETTER** Refrigeration and Air Conditioning Servicemen easily, quickly. This program has been carefully checked by prominent engineers—highly endorsed by successful students—O.K.'d by satisfied employers.

Under this plan, you use spare time at home to improve your present knowledge of refrigeration principles, controls, refrigerants, and other subjects. Then you come here for a brief, intensive period of actual shop practice with real tools, parts and equipment. This combination home-study—shop practice **BALANCED** training is so thorough, so practical, so valuable to the ambitious man that its low cost is often paid for in a short time through increased earning power.

Write **TODAY** for **FREE** details!

E. P. Sorensen, Pres.

### EMPLOYERS!

Write or consult with us **NOW** regarding your post-war needs for well-trained Refrigeration Technicians. Nation-wide service.



**UTILITIES**  
*Engineering Institute*  
1314 West Belden Ave. Dept. 45 Chicago 14, Ill.

## SURVEY LISTS REFRIGERATING EQUIPMENT IN BUFFALO

A GROUP of stationary engineers in Buffalo, N. Y., has completed a comprehensive building study which will afford elaborate protection for refrigerating equipment in buildings and plants in the event of enemy attack on Buffalo. This is not only a measure of protection but will be of lasting benefit to the fire department.

Every building having a power plant has been inspected. Detailed forms which recite the location of all refrigeration equipment have been completed. Location of shutoff valves is noted. Not only have engineers now been familiarized with all types of buildings, but the fire officers have been given the benefit of professional information concerning power plants regardless of their type or location.

Organized for nearly two years, the power engineers of the Buffalo Auxiliary Fire Corps has perfected an organization whose members respond to any emergency call to any building that might be involved in fire or demolition from any cause. The engineers, acting under the Fire Department defense co-ordinator, realized that in the event of bombing or sabotage, someone along the line might forget that there were refrigerating units to check, boilers to be watched and numerous other engineering features within buildings that might, if not closely supervised, cause more damage than a fallen bomb.

The setup, only one of its kind in the country, is attracting considerable attention from a number of other cities.

§ § §

## REFRIGERATORS FOR FARMERS

GOVERNMENT financing of the manufacture of refrigerators to enable them to be sold to farmers at actual cost price is being studied by the Ontario Provincial Agriculture Minister T. L. Kennedy, who told the Ontario Federation of Women's Institutes, of his plan.

Col. Kennedy said a refrigeration engineer has been engaged to design a type of refrigerator that will be ample for the needs of the farmer and one that can be manufactured in large quantity to bring down the price. It is his idea that the Government would finance the manufacture of these and sell them to the farmers at actual cost price, so as to bring them within the reach of every farm home.

## WESTINGHOUSE HAS PLANS FOR QUICK CONVERSION

COMPLETE plans are in readiness by Westinghouse for reconversion to civilian production as soon as war production demands slacken, it was disclosed at the company's recent annual conclave of officers and managers. Within a few weeks after the war the company will be able to resume production of electric appliances for the home, such as electric refrigerators and ranges, work on which has ceased for the duration.

Though the Electric Appliance Division, with plants at Mansfield, Ohio, and Springfield, Mass., has been converted completely to war work, production men have planned their wartime manufacturing layouts so that they can be rearranged quickly for mass production of appliances. Tools and dies are available for speedy resumption of peacetime manufacturing. A. W. Robertson, Westinghouse Chairman, cautioned however, that the company anticipates no revolutionary changes in the design of electric appliances during the first year or so of peace.

§ § §

## PRICE VIOLATORS WARNED

AN INCREASING number of cases in which used mechanical refrigerators have been sold in New Hampshire in excess of legal ceiling prices has caused Price Executive John D. Jameson of the OPA office to warn that ceiling prices apply to an individual who sells refrigerators, as well as dealers.

Mr. Jameson pointed out: "Price panels of every War Price and Rationing Board in New Hampshire are set up to help individuals determine top legal prices for such equipment as used electric refrigerators. The shortage of such equipment, known as 'consumer durables,' is becoming acute. Because of this, there is an increasing temptation to charge higher prices than are justified by the value of the equipment.

§ § §

## CORRECTION

AN announcement in the November issue stated that a refrigerator service Decal sign was available from the secretary of Detroit Chapter, R.S.E.S. This was incorrect, since R.S.E.S. has no chapter in Detroit at the present time.

# Season's Greetings

AT THIS season when "peace on earth—goodwill toward men" prevails, we pause from our labors to affirm our faith in the fundamental principles of freedom, lighting the whole world, without the obscuring cloud of hate and prejudice.

To our R.S.E.S. members everywhere—at home or fighting on the far-flung battlefronts to preserve our way of life—we send these holiday greetings to you and yours, with a fervent hope that the day of victory may not be far distant.

H. D. BUSBY, *Acting Secretary*  
C. BUSCHKOPF S. B. GARLAND  
W. W. ALLISON J. K. BUSH  
A. D. MCGILL A. M. PALEN

E. A. PLESSKOTT, *President*  
C. J. DOYLE W. MARSHALL  
J. L. DRISKELL W. W. FARR  
E. A. SUMMER A. M. FENWICK

## R.S.E.S. Chapter Notes

### DAYTON CHAPTER

*November 11*—The meeting was held at the Allied Parts Company with a good attendance. The period was devoted entirely to business among which was the appointment of a committee to handle the arrangements for a Christmas party to be held some time in December, and the appointment of a nominating committee to select a slate of new officers for the coming year. The annual election of officers will be held on December 9 and the meeting will be in Mr. Click's home in Springfield.

### INTERPROVINCIAL ASSOCIATION

*October 31*—The officers and board of directors of the Interprovincial Association held a business meeting on this date at which time a number of important matters were discussed and settled. Among them was a correction to the minutes of the last meeting in which the constitution and by-laws of the association were discussed, a treasurer's and auditor's report of the condition of the treasury, a further discussion on the matter

of honorary membership within the association and various reports from working committees. Discussion arising under the new business period was one on the matter of the annual Canadian conference.

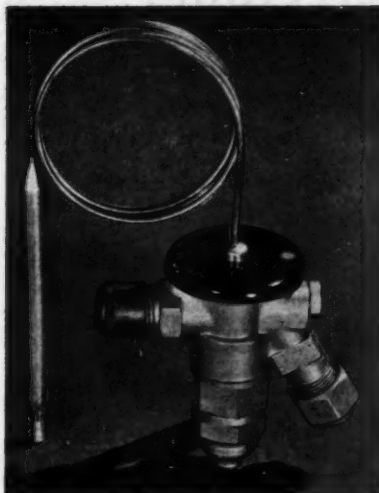
Committees were appointed as follows: W. Marshall, Chairman of Programme and Educational; H. F. Nye, Chairman of Hotel and Entertainment; E. G. McCracken, Chairman of Exhibition. All chairmen were required to appoint their own committee men. At the same time, a committee headed by E. G. McCracken was appointed to handle the forthcoming Interprovincial election.

The meeting adjourned at 12:35 for lunch and reconvened again at 1:30 p. m. at which time chairmen of the various committees announced the appointment of their committee men. The balance of the meeting was devoted to miscellaneous business matters of the organization.

### ATLANTA CHAPTER

*November 4*—The meeting opened with a very enjoyable chicken dinner which put the members in just the right mood to discuss the business matters at hand. One of the important matters coming up for discussion

# V-200 THERMAL EXPANSION VALVE



## Unsurpassed Sensitivity and Dependability

### FEATURES

- Readily removed orifice cartridges eliminates necessity for stocking several sizes for low tonnage installations.
- Carefully lapped hard faced ball insures positive tight shut-off.
- Thoroughly field tested.
- Handles freon, methyl chloride, sulphur dioxide.

Described in New Catalog No. 52.

Write today.

**GENERAL  CONTROLS**

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BRANCHES: Boston, New York, Philadelphia, Cleveland, Detroit, Denver, Chicago, Dallas and San Francisco

was the possibility of compiling a city code for the city of Atlanta.

On the educational program, discussion took place on the matter of changing various refrigerating units from Freon to methyl and emphasis was given to the York compressors which must not be changed to methyl because they contain aluminum buttons on the wrist pins. Westinghouse compressors also cannot be changed to methyl because of aluminum content in its make up.

W. Q. Sheridan was forced to resign from his duties as Secretary of the Chapter because of his lack of time to take care of the matter properly and Charles Biggers was elected Secretary in his place. An interesting talk by Henry Gullat and Robert M. Graves described their trip to French Lick Springs where they attended the manufacturers and jobbers meeting in October.

### MOUNT ROYAL CHAPTER

October 7—The meeting was conducted by Hector Milne, President. One of his first acts of the evening was to welcome back Gordon Roe, who has been absent for some time, due to illness. Visiting members from Quebec City were also welcomed.

Some time was devoted to a discussion of the labor shortage situation and to the price controls as they affected refrigeration. A treasury report was given by Mr. St. Laurent in Mr. Tremblay's absence, showing a very healthy condition of the treasury and a substantial growth over the former year.

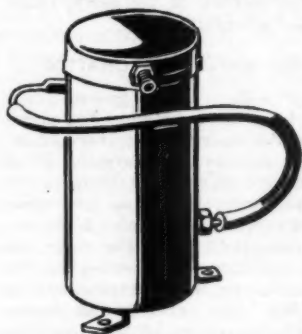
A break in the business session was enjoyed at this point by the showing of three moving pictures presented under the auspices of Kelvinator of Canada Limited. The three pictures were: "Le Nazi Jaune," showing the Japanese in action in China; "C'est la Guerre Eclair," a picture on the German invasion of Europe and "Paratroops," showing the training of men to become paratroopers.

On the educational program, Mr. Ross Turner gave a brief talk on various matters relating to the refrigeration business which may be classified as essential to civilian life. He dwelt to some extent on service in general, stressing the point that when a service man goes on a job, he should use the best of his ability to render good service even if it requires the spending of a little more time on each job, in order to save a repeat call, and the expense of additional parts, which

## HERMETIC REBUILDING

One of the largest hermetic rebuilding plants in the United States. Refrigeration units, parts and supplies. General Electric, Westinghouse, Grunow, Majestic. Write for catalog on your letterhead.

**GRUNOW Carrene Meters and Floats Repaired or Exchanged**



No. 504



No. 507  
GRUNOW  
Purge Valve  
Needle  
\$.25 EA.

GRUNOW  
Capillary Tube and Strainer



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No.  
505



No. 506

No. 504, 505, 506 must ship to us for exchange . . . . each \$5 00  
No. 504-A new meter (all brass) outright sale . . . . each 6.00

## Service Parts Company

2511 Lake St., Melrose Park, Ill.

at the present time, are at a premium. He also suggested more extensive overhauling of machines, instead of merely a service job which may not last long enough to warrant the work put in it.

### WESTERN MASSACHUSETTS CHAPTER

The Chapter has acquired its own home known as the Engineer's Club. They rented a store approximately 20x60 feet, cleaned up the place and installed a pool table for the benefit of its members, and were able to hold their last meeting on September 29 in their new quarters.

President, Harold Warner, has inaugurated a new policy this year under which two members are selected at each meeting to provide entertainment under the educational program for the following meeting—anything goes. They have already had a lecture and a demonstration of civil defense gases and bombs, moving pictures of all sorts; but the best program to date was put on by Messrs. Orton and Slattery at the last meeting. First, a half hour of movies were put on by Mr. Orton, then Mr. Slattery took over and burlesqued the repairing of a domestic ice-box, previously having made one

out of packing cases, chilling unit out of wood, tubing out of dowel rods of various sizes, condenser, return bends, etc., all out of wood cut to pattern on a hand saw. The compressor was wood, and the only square piston compressor in existence was rigged up with a flapper valve that made a lot of noise. It had a real thermostat and by adjusting same, the variable speed motor could be run either fast or slow. Two large paper gauges were on top run by an unseen man in the rear. One climax was when the dial was set for fast freezing and the compressor ran like Old Harry, and out popped a tray of cubes, pushed through from the back. Another climax was when the gauges ran to high pressure and a firecracker exploded, controlled by a long fuse.

Twenty members were present and under the new policy, members are taking a more active interest and more are in attendance.

### PROVIDENCE CHAPTER

October 13—The meeting was called to order by President, Olsen, and after some preliminary routine, a discussion arose on plans for dinner which was originally scheduled for the month of July. On a vote of the

membership, Messrs. Olsen and George Martin were asked to serve as the committee of arrangements and to prepare this dinner for the earliest possible date. The dinner is to be held at the 1025 Club in Providence. It was felt that the dinner could be held as a celebration for the installation of the new officers. The Chapter devoted this time to pay the per capita tax of all members now engaged in the armed forces, thus, maintaining them as members of the Chapter until such a time as they return.

#### NOVA SCOTIA CHAPTER

*November 10*—A regular meeting of the Chapter was held with a good attendance at this time and was featured by a general discussion led by Mr. Kearns on refrigerating gases. Mr. Kearns is an official of the Nova Scotia Light and Power Co. and is well versed in chemistry, so that the talk and discussions developed into a very interesting evening.

#### KANSAS CITY CHAPTER

*October 15*—The meeting was called to order by Mr. Meeker at the offices of the Temperature Engineering Corporation. New applications were received from Howard A.

Middleton and Albert C. Taylor for active membership. The applications were accepted. The Kansas City Chapter voted to donate \$10.00 to the War Chest Drive. A discussion on a forthcoming party was held and a committee appointed to make all arrangements, including the location of the party, entertainment and refreshments.

#### ONTARIO MAPLE LEAF CHAPTER

*October 16*—The meeting, as usual, was held at the King Edward Hotel. The educational committee chairman, Mr. Marshall, introduced the speaker of the evening, H. J. Philp of the Sun Oil Co. Mr. Philp gave a specially interesting lecture on the rather complicated process of obtaining highly refined oils from the crude. The entire description proved very interesting to the members and a vote of appreciation was extended to Mr. Philp. Considerable discussion arose on the problem of deferments for refrigeration men. Mr. Parrish reported that the advisory committee had the question under advisement and a promise to get the men all possible help in obtaining deferments.

Lt. Ed. Spall of the Canadian Reserve Army was present after many months of





*Superior has gone to War!*

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- \* PACKED AND PRESSURE CUP VALVES
- \* CHECK VALVES AND LIQUID INDICATORS
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- \* FITTINGS AND ACCESSORIES

Even though we are working "round the clock" on implements of war, every passing month strengthens our conviction that refrigeration equipment is so vitally essential that we should continue to allocate an increasing percentage of our manufacturing facilities, personnel and planning to our refrigeration products.

**THAT'S OUR POLICY . . .** continuing to do even a better job of supplying, as promptly as conditions will permit, more valves, manifolds, heat exchangers, dehydrators, liquid indicators, fittings and accessories to manufacturers, jobbers, installers and service engineers.

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SUPERIOR VALVE & FITTINGS CO.

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PITTSBURGH      PENNSYLVANIA

absence. He addressed the meeting with a few words of appreciation of the welcome accorded him and some explanation of his past activities.

#### MILE HIGH CHAPTER

*November 8*—The meeting was called to order by President, Leonard Martin, and in the absence of the Secretary, Mr. McCombs took over the secretarial work. The Chapter is endeavoring to obtain a refrigerated box in which to cool refreshments at the meetings and the committee appointed to obtain the necessary equipment asked for donations from the members brought the following: L. W. Barley, cabinet; Ernie Martin, compressor body and paint; Roy Roush, 1/6 h.p. motor and base; H. R. McCombs, evaporator and condenser; Bill Hemphill, switch.

Mr. McCombs has returned from the jobbers meeting at French Lick and a visit to several factories in the east. He devoted some time to telling the members what he had learned in regard to refrigeration during this trip. Priorities were discussed and latest price control orders.

#### MADISON CHAPTER

*November 11*—Herman Goldberg was scheduled to speak at this meeting and a better than average crowd was on hand. They had about 20 local men and two visitors from Milwaukee and two visitors from Rockford. The wives were invited to this meeting, and six ladies attended. Mr. Goldberg was a little late, so they filled in with some interesting movies furnished by the International Harvester Co. When Herman arrived, he showed some movies of the Madison Chapter activities to the whole group. The ladies then withdrew to another room, while Mr. Goldberg delivered his talk to the men.

Sandwiches, coffee, and beer were served at a social hour following the meeting. No business was transacted, the entire time being given over to the program and informal entertainment.

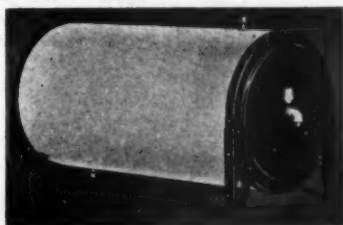
#### TWIN CITIES CHAPTER

*November 4*—C. A. McCafferty, Vice-President presided over the meeting. Mr. Art Palen made a report on his trip to Chicago; then a discussion arose on the manpower training program being conducted by the War Manpower Commission. A committee consisting of: Art Palen, Joe Parupsky, Dick Taylor, Jack Ehlers and True Ingersoll was appointed to work with the government representatives on this matter.

**Of course...**

## SERVICE PARTS ARE AVAILABLE!

Production of "Day and Night" Storage Type Water Coolers has continued at top speed to supply our Armed Forces on land . . . and at sea. Service Parts are available for all necessary repairs and new units can be supplied for replacements which qualify under Government Regulations.



## COMPACT MODELS for "TIGHT PLACES"

Tank Units, such as the Model CE-25 shown above, save space and are easily mounted on walls or ceilings or under counters. Under proper qualification, they can be supplied promptly in storage capacities from 2 to 25 gallons.

SOLD THROUGH THE  
ESTABLISHED  
REFRIGERATION TRADE

DAY  
NIGHT

**COOLER DIVISION  
DAY & NIGHT MFG. CO.**

MONROVIA - CALIFORNIA

FACTORY REPRESENTATIVES

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● Yes, it's mighty profitable to service those electric refrigerator motor-starting capacitors the Aerovox way. Just use the Aerovox listings to pick the correct replacement for the given motor. Get that replacement at your local Aerovox jobber. Install it. Presto! A satisfied customer and a nice profit. ● Consult our local jobber. Ask for latest motor-starting capacitor catalog. Or write us direct.

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Capacitors  
INDIVIDUALLY TESTED

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December, 1943

## Ladies Auxiliary

### TWIN CITIES AUXILIARY

November 4—The ladies met for a delicious pheasant dinner furnished by the auxiliary which was immediately followed by a business meeting. Thirty-nine people were served at the dinner and the pheasants were provided by members of the R.S.E.S. During the business session, it was decided to hold a Christmas party after the regular business meeting with a full fledged Santa Claus paying a visit to the meeting, bringing presents to everyone. Plans for the meeting and meeting place are not yet complete. The balance of the evening was devoted to card playing for which prizes were awarded.

### KANSAS CITY AUXILIARY

October 14—Most of the meeting was devoted to business matters of the Chapter during which the application of Katherine J. Anderson was received and accepted for membership. It was announced that the nomination of officers would be held at the November meeting. Christmas cards were displayed for the benefit of the members and some were sold. Some discussion arose regarding a needy family, or some other worthy cause which could be sponsored by the auxiliary during the Christmas season.

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## THE QUESTION BOX

(Continued from page 34)

on the coil and removed from the refrigerated space. This might be done by cutting off several turns of the evaporator coil, or by simply insulating them from air circulation, so that they are not producing any work in reducing the refrigerator temperature.

After you have covered part of this coil, you will have to reduce the pressure switch setting on the unit, so that the suction pressure is somewhat lower than that maintained at the present. Exactly what pressure will be required is difficult to say at the present time, but if you will continue reducing the coil area and reducing the suction pressure setting until you obtain the results you desire, you will have little difficulty. The capacity of the condensing unit will be automatically taken care of in these adjustments, because as you reduce the suction pressure, so you also reduce the capacity of the condensing unit.

## QUESTIONS ON GOVERNMENT ORDERS

(Continued from page 23)

refrigeration and air conditioning systems used for processing of products *other than food*. In case these systems become inoperative for lack of refrigerant, a separate application for refrigerants must be made by the owner of the system directly to the War Production Board, General Industrial Equipment Division, by letter, telegram, or other communication, stating (i) whether the system is used for air conditioning or refrigeration, (ii) its size or capacity by horsepower or tons of refrigeration, (iii) the minimum operating charge necessary to restore the system to operation, (iv) why conversion to another type of refrigerant is not practicable, (v) the functional use of the system in the plant, and (vi) the end product being processed by its use. If the application is granted, the Board will issue a specific direction to the producer authorizing and directing delivery of a specified quantity to be made to the owner of the particular system for the use specified.

• • •

### CEILINGS ON SERVICE WORK

**QUESTION 36:** We have maintained our service rate on all refrigeration service jobs but have been advised that the ceiling prices set by the OPA do not apply to commercial work, but only to household jobs. Will you advise if this report is true?

**ANSWER:** There is no distinction between commercial and household service work in this respect; therefore, ceiling prices set by the OPA apply to both commercial and household service work.

§ § §

### PEERLESS RECEIVES "E" AWARD

**I**N A colorful and impressive ceremony, recently, Peerless of America, Marion, Indiana, manufacturers of refrigeration, air-conditioning and heating machinery and equipment, was awarded the Army-Navy "E" Award for production achievement and excellence. Paul S. Perry, President of Perry-Brown, Inc., Cincinnati advertising and public relations man, acted as Chairman.

The award was accepted on behalf of the company and workers by R. W. Kritzer, President, while Robert M. Carberry, works manager, and a committee of workers, received the token lapel emblems.



Again

WE SAY

"Thanks"

★ We really mean it, you service men have used *Herveen* so much during the past year that we've been working day and night. And we wouldn't feel right, at the Christmas season, if we didn't say "thanks a million." On the other hand, we feel we have done a good turn for the service man in giving him a replacement gas for Frigidaire Meter-Misers, so he can build up his business with this profitable Hermetic servicing.

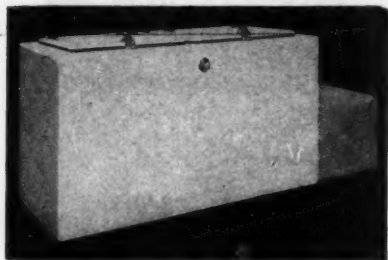
★ So, here's a thought for 1944, if you have not yet used *Herveen* you owe it to yourself to check up on how you can increase your income next season. Most jobbers now carry *Herveen*, if yours doesn't, write us.

**HERVEEN**

**MODERN GAS CO., Inc.**

*Manufacturers and Refiners*  
1084 Bedford Ave., Brooklyn 5, N.Y.

# SANITARY Quicfrez FARM LOCKER PLANTS



Model illustrated—No. C-1243.  
Capacity, 12.5 net cu. ft. Holds  
up to 600 lbs. of frozen food.

## FARMER'S QUICFREZ LOCKER . . .

Continental and Quicfrez Farm Locker Plants, manufactured by the Sanitary Refrigerator Company, are already in thousands of farm homes providing many advantages, and saving food, time and transportation while adding to food variety. While they'll rarely need service, you can depend on us for cooperation in the matter of replacement parts and other aid in keeping them at high efficiency.

Meanwhile, are you "up to date" on Sanitary Continental and Quicfrez specifications. Write today for the latest information!

**Sanitary Refrigerator Co.**  
**Fond du Lac, Wisconsin**

**FOR VICTORY**



**BUY  
UNITED  
STATES  
WAR  
BONDS  
AND  
STAMPS**

**BUY WAR BONDS NOW...**

and

**FARM LOCKER PLANTS**

**AFTER THE WAR**

## WELDING ROD FIRM TRAINS SERVICE ENGINEERS

THE Eutectic Welding Alloys Company, 40 Worth Street, New York, has concluded an intensive training course for the benefit of its Mid-Western and Western field engineers, employing for this purpose the gas welding facilities of the Utilities Engineering Institute, 1814 Belden Avenue, Chicago. This prominent Midwestern school was selected as a training center because of the outstanding work done by the Utilities Engineering staff in conducting tests of the Eutectic products when it was first being introduced into this country.



Field engineers learn welding technique at school conducted by Eutectic Welding Alloys Company.

The Eutectic process, which has been known for only about two and one-half years, was developed by R. D. Wasserman, metallurgist and welding engineer. It is the result of exhaustive research and, since its appearance on the market, has found widespread acceptance.

The training course was conducted under the supervision of Mr. Wasserman, and was attended by all of the company's field engineers. The purpose of the course was to acquaint these men with the latest applications of the Eutectic low temperature process in the various fields of production, salvage, and reclamation, in order to permit them to familiarize war plants in their territories with these improvements.

The mornings were devoted to welding exercises employing the various new rods in many and varied applications, and the afternoons to technical questions and discussions. This was the second regional course, the first having been held recently in New York, and others are planned for the future.

## H. K. STEINFELD WITH BRUNNER

**T**HE Brunner Manufacturing Co., Utica, N. Y., announces that H. K. Steinfeld has joined the company as assistant chief engineer.



H. K. STEINFELD  
Brunner Mfg. Co.

Mr. Steinfeld comes to Brunner from the Baldwin Locomotive Works where he specialized in the design of heat transfer surfaces for army tanks, such as oil coolers and

radiators as well as the oil coolers and radiators of diesel-electric locomotives.

Born in Hamburg, Germany, in 1908, Mr. Steinfeld brings to Brunner 18 years of engineering experience in the refrigeration and allied fields. Graduated from Polytechnic Institute of Hamburg, Mr. Steinfeld embarked for the United States in 1928 after three years of practical experience in Germany. He became a draftsman for York Ice Machinery Corp. on industrial refrigeration installations. In 1929 he joined the engineering staff of Carrier Engineering Corp. His work here was on the development of unit or package equipment for commercial and domestic air conditioning installations.

Following post-graduate work at N. Y. U., in heat transfer theory and laboratory he joined the De La Vergne Refrigeration Division of the Baldwin Southwark Corporation as development engineer.

In association with Chas. R. Neeson, Henry C. Heller and Henry Galson, Mr. Steinfeld was awarded the John Scott Medal Award by the City of Philadelphia, for the development of the first hermetically sealed compressor of more than fractional horse-



**HIGH SIDE CHEMICALS CO.**  
195 Verona Ave. Newark, N. J.

## Season's Greetings

We extend our best wishes to the industry in holiday season and express our appreciation for the confidence shown us throughout 1943 from the vast expanse of the Pacific . . . Adak, Alaska, down to Hawaii and Australia . . . across the United States and Canada and over the far reaches of the upper and lower Atlantic . . . from Archangel, England, the Mediterranean, and Africa to the Cape of Good Hope.

And when another year has slipped around, we hope that our services may be measured again by the service we have rendered to mankind, whether in or out of war.

# THAWZONE

Fully Protected by U. S. Patents

The PIONEER FLUID DRYDRANT

## CONTROL REPAIR SERVICE

Because of the shortage of materials, 1943 will be a very busy one for the Service Engineers. Fewer replacement parts will be available, necessitating more repairs.

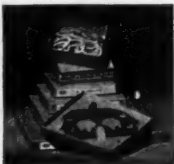
Why not send your control jobs to us? We recondition controls equal to new at a small cost. All our work guaranteed for one year. Prices on request.

### UNITED SPEEDOMETER REPAIR CO.

342 West 70th Street  
New York City 23

GASKETS

## SPEED VICTORY



• Until Victory is won, war orders come first. Today, our gasket service for every refrigeration need is helping speed war production. Under these conditions, delays in filling other orders are unavoidable.

CHICAGO-WILCOX MFG. CO.

7701 Avalon Ave. Chicago 19, Illinois

## REBUILDING SERVICE

Compressor Highsides, all makes like new. Westinghouse evaporators and Units. Dehydrators rebuilt with new felts and re-filled with Silica Gel. Prompt service by trained mechanics. Satisfaction guaranteed and prices reasonable. Write for price list on your letterhead.

**Valley Refrigeration Service**  
P.O. BOX 572 Harrisonburg, Va.

power capacity and the first self-contained air conditioning unit for home and office as well as railway applications together with the successful application of the heat pump principle (reversed cycle).

In 1937 he rejoined the development department of Carrier Corp., Syracuse, N. Y.

\*\*\*

## IMPERIAL ANNOUNCES FLARING TOOL FOR PLASTIC TUBING

A NEW flaring tool, designed specifically for use with plastic tubing, which produces the approved type, double thickness flare connecting this tubing with flare fittings, has been announced by The Imperial Brass Mfg. Co., 1200 W. Harrison St., Chicago 7, Ill. One tool handles the four most popular sizes of tubing:  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{5}{8}$  and  $\frac{3}{4}$  inch outside diameter. While the tool is designed especially for .062 in. wall tubing, it will also handle .081 in. wall.

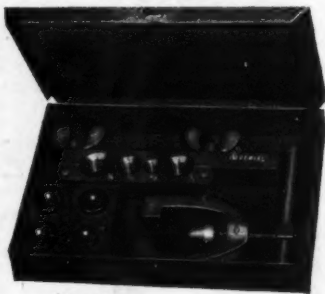


Fig. 1

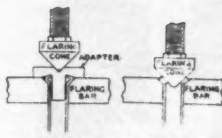


Fig. 2

Fig. 3

The flare produced by this tool is called a "double flare" because the plastic tubing is folded back at the ends to form a flare with double-thick, double strength walls. This double flare is reported to offer the following advantages as compared to the ordinary single flare in making joints with larger sizes of plastic tubing: (1) Makes joints having 85 per cent greater resistance to pull-out. (2) Retains its shape after flaring—does not snap back the way the single flare tends to do. (3) Protects the wall of the tubing

against being squeezed too thin in flaring. The new tool is small and convenient to use right on the job, and it can be operated in very close quarters.

Complete tool consists of flaring bar, yoke with swivel cone and four adapters, all furnished in a metal kit. It is catalogued as No. 175-FP Multi-Size Double Flaring Tool for Plastic Tubing and is fully described in Bulletin No. 838, which is available from the manufacturer.

\*\*\*

## DRAYER & HANSON NAME LEWIS FIELD REPRESENTATIVE

THE appointment of J. C. Lewis as field representative for the states of Arkansas, Louisiana, Texas and Oklahoma has been announced by Drayer & Hanson, Inc., Los Angeles, Calif., manufacturers of Heat Exchange Equipment. Mr. Lewis, who has been employed in the sales and engineering departments at Los Angeles, will maintain his headquarters for the new territory in Austin. The appointment comes as a part of a general expansion program of the company, whose products are designed for refrigeration, air conditioning, and general industrial application.

\*\*\*

## WEATHERHEAD CO. AWARDED PRODUCTION STAR

FOR continuing to achieve conspicuous production, the Weatherhead Company, Cleveland, Ohio, has been awarded the Star for such achievement to add to its Army-Navy "E" Flag.

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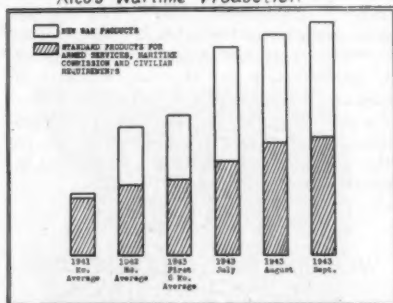
### ALCO VALVE WAR RALLY

IN spite of heavy contracts for new war products, the output of its standard products, about 80 basic refrigeration controls, for the armed services, the Maritime Commission, and for civilian requirements has approximately doubled in the last two years, according to Arthur B. Schellenberg, president of the Alco Valve Co., St. Louis, speaking at the company's annual War Rally, held Saturday evening, October 28.

With current total production running about four times the 1941 dollar volume, Alco Valves have been installed in almost every ship, whether Navy or Maritime, that has gone down the ways for many months, supplies for many land based refrigeration systems, hospital equipment, and other new and increased uses too numerous to mention.

The accompanying chart, copied from a large poster board exhibited at the Rally, illustrates the increase and compares the production of new war products and stand-

Alco's Wartime Production



ALCO VALVE CO. 835 KINGSLAND AVE. ST. LOUIS



ard products, and emphasizes the fact that Alco's refrigeration control business is greater than ever before.

Four employees were given ten-year service awards, three were given five-year awards, and 69 one-year awards.

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The heating process is controlled by thermostats and when the proper temperature is reached, the oil is dropped into a transfer tank, then forced through a two-stage filter by compressed air and out to clean oil receiving drums.

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\*\*\*

## G. E. WINS SECOND AWARD

FOR the second time the General Electric plant at Bridgeport, Conn., has won the Army-Navy White Star award for meritorious services on the production front. This notice was received by H. L. Andrews, vice-president of the Appliance and Merchandise Division, in a letter from Robert P. Patterson, Under Secretary of War.

Mr. Patterson's letter said the company had continued to maintain the high standard set and which had won distinction more than six months previously. Replying Mr. Andrews said it was a source of great pride and satisfaction to the company and its workers to have this commendation and that they would rededicate themselves to the purpose of maintaining the record established, and even improving upon it. He added that they were conscious of the contribution for which they were called.

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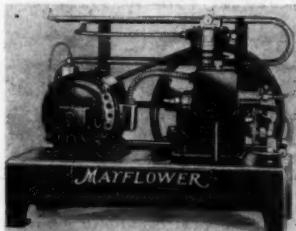
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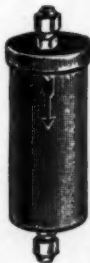
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January to December, 1943

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